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USSR Report

HUMAN RESOURCES

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LABOR

ANALYSIS OF GROWTH RATE IN INDUSTRIAL WAGE SYSTEM VIEWED

Moscow FINANSY SSSR in Russian No 8, Aug 85 pp 37-42

[Article by Yu. V. Chubarov, sector head of NIFI [Scientific Research Institute for Finance], candidate of economic sciences: "The Wage Fund's Formation in Industry"]

[Text] The aggregate wage fund in industry is an integral part of the entire system for planned regulation of the basic national economic proportions in production, distribution, exchange and consumption. Providing scientific substantiation of its proportions at various levels and increasing the effectiveness of use of the resources which the socialist society commits to remuneration of industrial workers are the most important tasks in improving the entire sphere of management of the economy. A strict correspondence has to be ensured between the final operating results of production collectives and the proportions of the wage fund, between every worker's individual input of work and his money income.

Indicators reflecting the effectiveness of the use of the wage fund show that this characteristic is higher in industry than in other production sectors. Whereas in the 1976-1980 period no increase was achieved, and in the first 2 years of the present 5-year period there was even a drop in the industrial output (in comparable prices) per ruble of wages as compared to 1975, because of the measures in the labor and wage field taken by the party and government the situation has recently been turned around. At the same time an analysis indicates that the growth of expenditures for remuneration of workers and employees in 1983 was not accompanied by a corresponding increase in newly added value in industry, which brought about an increase in the share of wages in the national income.

The funds which the state commits to remuneration of workers and employees in industry have been growing steadily (especially during the 8th, 9th and 10th Five-Year Plans). The growth of the fund for remuneration of workers and employees (including payments from the material incentive fund and bonuses from special sources) was 2.2-fold greater in the period 1976-1980 [original reads "1966-1980"] by comparison with the previous 5-year period. During the 11th Five-Year Plan this fund experienced a further growth in accordance with the Basic Directions for the Economic and Social Development of the USSR Over the Period of 1981-1985 and up to the Year 1990. In 1983 it was 8.4 billion rubles greater than in 1980 and amounted to more than 90 billion rubles.

The drop in the growth rates of the wage fund by comparison with the 10th Five-Year Plan resulted mainly from a substantial drop in the growth of the number of workers and employees in industry. For a long time our country had a sizable reserve of manpower and could therefore increase the volume of output by drawing that reserve into social production. But in the mid-fifties the absolute size of the growth in the number of workers employed in social production began to drop, and that also applied to industry. It began to manifest itself in the greatest degree in the early eighties. Whereas in the period 1966-1970 the average annual number of workers and employees in industry increased 15.1 percent, the growth in the period 1971-1975 was 7.8 percent, and in the period 1976-1980 it was 8.3 percent, and in the 3 years of the present 5-year period the growth has been only 2.5 percent. This drop in the growth of the force of workers and employees has occurred against the background of slower growth rates of their average wage.

The plan for the 1981-1985 period called for achieving the entire growth rate of output at enterprises without adding to the labor force. This means that raising labor productivity is becoming the sole factor in economic growth. At the same time conditions are being brought about for more economical expenditure of funds assigned to increasing remuneration, since increasing the volume of production costs less in wages than hiring new workers for a similar growth of output.

Table 1. Composition of the Fund for Remuneration of Workers and Employees in Industry

<u>Indicator</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Aggregate fund for remuneration of workers and employees	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Breakdown:							
Wage fund	98.8	92.2	91.2	91.6	91.6	91.0	91.1
Material incentive fund	--	6.4	7.4	7.4	7.5	8.0	8.0
Special sources	1.2	1.4	1.4	1.0	0.9	1.0	0.9

The wage fund, the material incentive fund and resources from special sources used to pay bonuses to personnel under supplemental systems do not play an identical role by any means in forming the fund for remuneration in industry and in ensuring its growth. The proportion in distribution of the aggregate fund for remuneration are shown from year to year in Table 1.

As we see in the table the wage fund comprises the predominant share of all the resources spent to remunerate workers and employees, even though its share has decreased somewhat. Payments from the material incentive fund have increased considerably, and in 1983 amounted to 8 percent of the aggregate fund for remuneration of workers and employees in industry. The relative share of resources for awarding bonuses from special sources dropped back to 0.9 percent of the total amount of the fund.

The stimulative function of wages in the growth of production and the rise of production efficiency is manifested to a greater degree when the system of remuneration at wage rates and salaries and the bonus system react quickly to a change in indicators reflecting both the economic and also the qualitative aspects of the workers' work, increasing the remuneration when the results of labor prove to be higher than the norms which have been set, and diminishing it when they are lower. At the same time the normal functioning of the system of material work incentives is possible only if enterprises and associations have appropriate sources from which to pay wages and when those sources are closely linked to the dynamic behavior of production efficiency and also when funds used for payments to workers that depend directly on the results of operation predominate in the aggregate fund for remuneration. Those payments include the following: remuneration at wage rates and salaries, including payment for overfulfillment of output quotas, payments on work done by the job and various supplements to wages and salaries; all forms of bonuses and awards paid from the wage fund, the material incentive fund and special sources.

The grouping of the structural components making up remuneration of workers and engineering and technical personnel is of interest to an analysis of the relative share of these payments in wages. The figures in Table 2 show the dynamic relationships between the structural elements of the fund for remuneration of workers.

Table 2. Composition of the Fund for Remuneration of Industrial Workers, in percentage

<u>Indicator</u>	<u>1972</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Aggregate fund for remuneration of workers	100.0	100.0	100.0	100.0	100.0
Remuneration at piece rates and time rates	66.4	61.9	61.4	59.7	59.3
Bonuses--total	16.2	19.4	19.7	19.7	20.0
From the following sources:					
Wages fund	10.2	13.4	13.7	14.0	14.2
Material incentive fund	5.0	5.2	5.3	5.0	5.1
Special sources	1.0	0.8	0.7	0.7	0.7
Payments related to the location of enterprises	4.8	5.5	5.5	5.6	5.6
Paid vacation	7.2	7.1	7.1	7.0	7.1
Awards based on longevity	0.7	0.9	0.9	1.6	1.6
Other payments	4.7	5.2	5.4	6.4	6.4

Over the period since the measures took effect to increase and improve remuneration based on wage rates and salaries during the 9th Five-Year Plan (1972) the share of payments directly related to performance indicators has dropped 3.3 points--from 82.6 percent in 1972 to 79.3 percent in 1983. At the same time there has been a substantial change in the relative share of those payments in the total fund for remuneration of workers. The share of remuneration of workers at piece rates and time rates dropped 7.1 points, while at the same time the share of bonuses increased 3.8 points.

The increase in the share of bonus payments in the total size of the fund for remuneration of workers, and this is its most mobile element, indicates faster growth of the absolute size of bonuses by comparison with the increase of the other components of the average worker wage.

The effectiveness of the material stimulation of labor is determined not only by the size of the bonus fund, but also by the use of those indicators and qualifying conditions for bonuses which motivate workers to achieve higher qualitative and quantitative indicators in their work which are maximally linked to the properly planned end results of production. In this connection the fact that the share of bonuses from the wage fund is growing faster than bonuses paid from the material incentive fund indicates that the material stimulation of intensive growth factors has still not become predominant in the system for awarding bonuses to workers.

The reduction in the average share of remuneration based on piece rates and time rates is a direct consequence of the insufficient flexibility of the mechanism for revision of various aspects of the wage system. The invariability of wage rates when wages are rising steadily because of the technical capabilities of production and use of advanced know-how diminishes the role of centralized regulation of remuneration of workers in industry and results in the use of work norm setting as a means of regulating wages.

In recent years there has been an increase in the additional earnings from piece rates in practically all sectors because the level of quota fulfillment has risen. In industry as a whole the average level of output quota fulfillment by piece rate workers in October 1984 was 124.3 percent; moreover, more than 30 percent of all the workers fulfilled the quotas at a rate of at least 130-150 percent. The relative share of technically substantiated output quotas in the total number of work norms in effect in industry was 73.9 percent in October 1984, while in machinebuilding and metal manufacturing, where approximately 40 percent of all piece-rate workers taken into account are employed, it was still lower--72.6 percent. The use of output quotas as payment norms in connection with the growth of wages that is being planned every year results in the creation of an unsubstantiated wage fund, especially when quotas based on experimental statistical methods are used, both at individual enterprises and also in various branches of industry.

The structural elements of remuneration that do not result directly from the contribution of work to production represent a relatively small share of the earnings of workers, but recently they have been showing a tendency to increase, above all awards for longevity and other payments. In just the first 2 years of the 11th Five-Year Plan such payments increased by nearly 1 billion rubles.

The funds which the state appropriates to the wage fund must be used in the most expedient way. To be specific, payments for longevity must strengthen to the maximum the economic pressure on workers in industry to remain in the same place and should cut down the turnover of personnel. As for the supplements paid for overtime to piece-rate workers in connection with changes in working conditions and the payment of idle time lasting an entire shift or part of a

shift, which in 1983 totaled about 500 million rubles and were one of the reasons for overexpenditure of the wage fund, they can be reduced substantially if measures are carried out to improve work and production.

The breakdown of the fund for remuneration of engineering and technical personnel from year to year is represented in Table 3.

Table 3. (The figures are given in percentages.)

<u>Indicator</u>	<u>1972</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Fund for remuneration of engineering and technical personnel	100.0	100.0	100.0	100.0	100.0
Payment based on salaries	62.4	59.6	59.2	58.7	58.8
Bonuses--total	21.0	24.0	24.2	23.3	22.8
Bonuses from special sources alone	3.6	2.6	2.4	2.3	2.2
Remuneration related to the location of enterprises	4.6	5.4	5.3	5.4	5.4
Paid vacation	7.1	7.0	7.0	6.9	7.0
Awards for longevity	1.6	0.6	0.7	1.9	2.0
Other payments	3.3	3.4	3.6	3.8	4.0

The figures given show that the share of the fund built up on the basis of salaries and bonuses, i.e., payments directly related to the work performance of personnel, dropped 1.8 points (83.4 percent in 1972 and 81.6 percent in 1983). As the share in the salary part of the fund for remuneration decreased during the 11th Five-Year Plan, the total amount of awards for longevity began to increase, as did that of supplements and premiums instituted on a decentralized basis.

The relative share of awards for longevity have risen from 0.6 to 2 percent during the 3 years of the 11th Five-Year Plan, and in 1983 exceeded the same indicator for blue-collar workers by 0.4 point (Table 2), which to a certain degree resulted from the higher stability of engineering and technical personnel. The rise in miscellaneous payments is related above all to the right of associations and enterprises to pay premiums to engineering and technical personnel for savings on the wage fund.

The growth rates of the average wage depend on changing relationships between the principal factors governing the growth of the national income. If the predominant share of the growth of the national income is obtained from the rise of labor productivity, then in spite of the drop in the share of the fund for remuneration in the national income, it is possible to guarantee maintenance or acceleration of the growth rates of the average wage. At the same time it is indispensable to always guarantee a close dependence between expenditure of resources for remuneration of labor and the rise of labor productivity and to achieve correspondence between the measure of collective labor and the measure of its remuneration.

It is natural in expanded socialist reproduction for labor productivity to rise faster than the average wage. This is determined by the need to ensure

optimum national economic proportions in distribution of the national income and effective expenditure of the resources which the state has appropriated for remuneration of workers. But the size of this difference may not be the same over a lengthy period of time nor from one association or enterprise to another. The relationship between the rise of productivity and remuneration depends on the operation of many objective and subjective factors. The task is in planning the wage fund at various levels of management of industry to give maximum consideration to their influence and to determine the specific level of relationship between these indicators and to keep a close watch so that the required relationships among them are maintained.

In recent years there has been an adverse tendency in the relationship between the rise of productivity and remuneration (Table 4). Whereas in the 9th Five-Year Plan for every percentage point of the rise of labor productivity achieved, wages rose 0.7 percent, the increase over the period 1976-1980 was 0.8 percent. In 1981 and 1982, in spite of a further drop in the growth rates of labor productivity, the growth of remuneration remained high (if we take into account the rise in remuneration of workers and employees in the coal industry and certain categories of engineering and technical personnel in the textile and certain other branches of light industry), and already exceeded the growth of labor productivity.

Table 4. Relationship Between the Growth Rate of Labor Productivity and the Growth Rate of the Average Wage in the Industrial Sector Over the Period 1970-1983 (1970 = 100)*

<u>Year</u>	<u>Labor Pro- ductivity</u>	<u>Average Wage</u>	<u>Growth of Wages Per 1-% Growth of Labor Productivity</u>
Cumulative total			
1970	100.0	100.0	--
1975	134.0	122.0	0.6
1980	156.0	139.0	0.7
1981	161.0	142.0	0.7
1982	164.0	147.0	0.7
1983	170.0	150.0	0.7
Annual average over 5-year period			
1971-1975	106.0	104.0	0.7
1976-1980	103.2	102.7	0.8
1981	102.4	102.3	1.0
1982	102.1	103.5	1.7
1983	103.6	101.7	0.5

* Calculated from the data in the statistical yearbooks for 1982 and 1983. "Narodnoye khozyaystvo SSSR" [USSR National Economy], Finansy i Statistika, Moscow: 1983, pp 37, 370; 1984, pp 39, 43, 393.

As the transition has been made to forming the wage fund of industrial ministries, associations and enterprises on the basis of standard rates of wages per ruble of output, substantially broader opportunities have existed for

preventing the violations of the proportions envisaged in state plans between the rise of labor productivity and the growth of the average wage. In 1983 labor productivity rose 3.6 percent as against 2.9 percent in the plan. There was a drop in the number of enterprises which overspent the wage fund, the aggregate amount of overexpenditure and the size of the unreimbursed remainder decreased. As a result the rise of wages was 0.5 percent for every 1-percent increase in labor productivity.

The establishment of standard relationships between the rise of labor productivity and the growth of wages in industry is expected to play a large role (beginning in 1984) in speeding up the rise of labor productivity and in ensuring economically sound proportions between the rise of productivity and the rise of wages. As the maximum proportion set in the plan increases, a portion of the resources of the material incentive fund is credited to the reserve of the association (enterprise) or is transferred to the fund for social welfare and cultural programs and housing construction.

The procedure of reimbursing overexpenditures of the wage fund has also undergone further development. Now an overexpenditure by associations and enterprises must be made up during the year. The material incentive fund is the source from which it is covered, along with the saving on the wage fund, but if the material incentive fund is inadequate, then the reimbursement is made from the wage fund reserve or the material incentive fund of the ministry or department.

The effectiveness of the method of planning wages based on assigning standard rates is manifested under the conditions of stability of the rates applied, assuming at the same time that they are economically sound. But in practice the frequent changes of plans with respect to the volume of production and the assortment of products produced result in adjustments of the standard rates which have been assigned in order to preserve the original wage fund. A set of methods for computing the standard rates has not yet been elaborated. In actuality the wage fund is not being determined from the standard rate, but rather the standard rate is being computed from the resources appropriated to the enterprise for remuneration. As a result enterprises operating less strenuously and with a relatively high level of wage costs per ruble of output because of shortcomings in work norm setting, unproductive payments, and so on, not uncommonly turn out to be in a better position than those where the potential for saving on the wage fund has already been substantially exhausted. The shortcomings of planning from past achievements are thereby being carried over into the normative method.

One of the problems related to improvement of the system of remuneration under socialism is creating approximately equal starting conditions. The new statutes in the field of labor and wages, which are now being carried out in a number of industrial ministries which have been conducting an economic experiment in 1984 and 1985 must play a definite role in solving this problem.

In accordance with the normative documents on the conduct of the experiment, the planned fund of associations and enterprises in Minelektrotekhprom [Ministry of Electrical Equipment Industry], UkSSR Minpishcheprom [Ministry of Food

Industry], BSSR Minlegprom [Ministry of Light Industry] and LiSSR Minmestprom [Ministry of Local Industry] was calculated from standard rates of the growth of wages for every percentage point of growth of the volume of output. As for the base wage fund, it was determined on the basis of the wages actually paid to industrial production personnel proper in 1983 (the year before the year being planned), minus the total overexpenditure of the fund that occurred in that year or plus the amount of the saving achieved which was not used by the end of the year. In addition, the base wage fund was reduced when there was a drop in the growth rate of labor productivity at the enterprise or the volume of output fell below the plan and for the year was actually lower than the average annual growth of these indicators over the previous 5 years.

At the same time it would be wrong to overestimate the role of that kind of adjustment. The point is that a relative saving on the wage fund (or overexpenditure) can figure as a yardstick of the effectiveness of making wage expenditures only if the size of the fund is economically sound. However, in practice the differences that have come about in levels of wages under the influence of subjective factors not uncommonly become reinforced when the planned funds for remuneration are computed, not to mention unjustified adjustment of the plans themselves.

This is why the present procedure for regulating the initial level of wages is in need of definite refinement. First of all, differences in the level of income of workers which have resulted from various kinds of nonproductive payments must be eliminated. This means reducing by their amount the wage fund of industrial personnel proper that was actually computed in the year preceding the year being planned. Supplements paid for overtime to piece-rate workers in connection with changes in working conditions and remuneration of idle time lasting an entire day or part of a shift are reflected in statistical reports, so that from the technical standpoint there is no great difficulty in carrying out this proposal. As for differences in wages resulting from the state of work norm setting and the quality of norms and quotas in effect at enterprises, it is best to eliminate them gradually, say over a period of 5 years, by means of the mechanism for formation of the wage fund.

For enterprises at which an unjustifiably high level of wages has been achieved, targets for the 5-year period to eliminate shortcomings in work norm setting and to introduce technically sound norms should be assigned when the standard rates and norms are calculated. In the practice of this method wage payments over and above the rates of expenditure envisaged would not be made up for by the standards, which could result in overexpenditure of the wage fund, with all the adverse consequences for the collective that arise therefrom. This will unquestionably motivate them to carry out the necessary measures to raise labor productivity and to use the resources for remuneration of labor economically.

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LABOR

IMPACT OF TECHNOLOGY ON REDISTRIBUTION OF LABOR RESOURCES

Moscow PLANOVYE KHOZYAYSTVO in Russian No 8, Aug 85 pp 42-48

[Article by I. Maslova, doctor of economic sciences, A. Dadashev, candidate of economic sciences, and V. Moskovich, candidate of economic sciences: "Influence of Technical Progress on Freeing Up and Redistributing the Labor Force"]

[Text] Carrying out the Communist Party line directed at speeding up our country's socio-economic development objectively requires a major acceleration of scientific and technical progress and the highest world level of labor productivity.

M. S. Gorbachev, the general secretary of the CPSU Central Committee, in a conference report dated 11 June 1985 stated that the acceleration of scientific and technical progress was a basic question of the party's economic policy. In connection with this, it has become particularly urgent to further work out the methodological problems linked with the study of redistributing the labor force, organizing the retraining and job placement of the freed-up workers, and supporting a balanced development of the economy.

Intensification of production and better utilization of the accumulated potential are bringing about profound changes in all the forms of social division of labor, the structure of employment, and the level of the workers' mobility. Speeding up the process of replacing equipment with new generations of equipment and the conversion to principally new technological systems will deepen lack of correspondence between the period of individual jobs and the period of the labor activity of the workers; they will impart even more dynamism to the link between equipment and the human being.

Further development of scientific and technical progress will be accompanied by considerable economies in live labor in those sectors producing material products (industry, construction, and agriculture) along with a significant increase in the production volumes within them; also with an increase in the growth rate of employment in the sphere of servicing production and the population. In turn, a further raise is required in the level of planning for freeing up and redistributing employees. In this regard, two groups of problems must be precisely delineated.

The first group includes the influence of NTP [scientific and technical progress] on the need for a labor force, its quantitative and qualitative

characteristics, and the composition of the sectors in which there are possibilities for redistributing manpower. Here it is important to bear the following points in mind.

In the first place, the influence of scientific and technical progress on the quantitative and qualitative aspects of the need for manpower is contradictory in nature. With regard to quantity, NTP changes the need for the number of workers in various fields of social production, in sectors and regions, causing them to be reduced in some instances and increased in others. With regard to quality, the influence of NTP manifests itself as a change in the requirements made on the occupational-skills make-up of the workers, the contents of their labor, in the appearance of new occupations and specialized fields, the dying away of a number of traditional ones, etc.

A certain portion of the workers who have been freed up for other jobs do not correspond qualitatively to the changing needs of production; this complicates their effective distribution and inclusion in the process of social labor without preparatory retraining. Furthermore, retraining and redistributing workers entails material and financial expenditures.

In the second place, NTP should be regarded as the chief factor in economizing on live labor and as the material basis for redistributing the aggregate mass of labor in the national economy and in increasing the effectiveness of utilizing labor resources. From the viewpoint mentioned above NTP provides its most tangible effect in industry, agriculture, and construction, i.e., where it manifests itself in increased labor productivity, a change in the correlation of the indicators reflecting growth in the volumes of production and the number of workers. In these sectors NTP creates the prerequisites for intra- and inter-sectorial redistribution, thereby expanding the possibilities for satisfying the growing needs for manpower in other sectors of the national economy.

The second group encompasses the problems of discovering the possible and feasible forms of redistributing workers among the sectors of the national economy in connection with the anticipated growth of labor productivity, as well as choosing the directions for the redistribution of the freed-up workers. In examining this group, attention should be paid to the fact that the intended major acceleration of NTP in industry, agriculture, and construction creates the opportunity for and the necessity of redistributing workers, and this can be achieved by means of an actual shift of some workers from certain sectors to others; also changes in the directions in the distribution of young persons, drawn for the first time into the process of social labor; the utilization of some of the freed-up workers within a sector and in the procedure of redistributing them to jobs being freed up in connection with workers retiring on pensions or switching to jobs in other sectors.

The first form is connected for workers with the necessity of making major changes in their accumulated work habits, experience, and the customary field of their labor activity, as well as the need to undergo special retraining. Furthermore, various sectors have unequal opportunities for utilizing freed-up workers, who may not be motivated to switch to a job in another sector because of the presence of sectorial differences in wages or a lack of desire to lose

the privileges and advantages which they had on their previous job. Finally, not everybody wants to or is capable of (because of inclinations or age) to carry out the new labor functions, to change the contents of their labor and undergo retraining in order to master a new occupation.

The second and third forms of redistributing workers require a meticulous accounting of the scope of that portion of the workers who are attaining the disability age, the influx of young persons entering upon the able-bodied age; justifying the proportions of distributing young persons into study and into the sphere of social work, as well as between the aggregate of sectors connected with the production of material output (taking into account the possibilities of intrasectorial redistribution of freed-up workers) and the remaining sectors of the national economy.

In justifying the feasible scope of attracting young persons (drawn for the first time into the sphere of social labor) into industry, agriculture, and construction, it is necessary, in our opinion, to observe at least the following two mandatory conditions. The number of workers in these sectors who cross the frontier of the able-bodied age (i.e., who are going onto a pension) and who wish to switch over to different sectors, must, in the first place, function as the determining size with regard to the scope of the intrasectorial redistribution of workers who are being freed up and attracting young persons being drawn for the first time into the sphere of social labor; in the second place, to outstrip the dimensions of the young persons being attracted and the reverse influx into these sectors of personnel from the sphere of servicing production and the population.

The delineation among the three forms of redistribution enumerated above, the justification of their correlations and feasible trends of redistribution of freed-up workers are of major importance. On the solution of these problems depends the contents of the proposals and measures regarding strategy in the sector of education, development of vocational guidance and vocational training for working personnel, restructuring the structure of employment, as well as improving the aggregate of the forms of organized redistribution, retraining, and job placement.

A methodological lack of preparedness for conducting calculations of the scope of the anticipated freeing up of workers for the future complicates providing the basis of the correlations, optimal for various periods, of the correlations of forms of redistribution in connection with speeding up NTP. It is possible to give merely an approximate evaluation of the future situation with regard to this problem, based on analyzing the qualitative characteristics of persons of able-bodied ages who will be affected by scientific and technical progress during the period from 1986 to 2000.

The level of general-educational training among employees on the production line will be significantly higher by the end of the year 2000 than during the 12th Five-Year Plan, since its basic core (persons 30--49 years of age) will be composed of persons who today are under 35 years old. Entering upon the pre-pension period will be women workers now belonging to the group which ranges in age from 35 to 44, as well as men in the 40--49 year-old group with quite a high level of general-education and specialized training. There will

be hardly any persons with just an elementary education remaining on the production line, while there will be comparatively few with an incomplete, secondary education (they will remain partially in the pre-pension group).

The principal characteristic of the contingent of workers under consideration, among whom the process of freeing up will occur, is the fact that all of them, regardless of age, have an inherent lack of interest in performing unskilled work; they have high requirements for the conditions and contents of work and for the level of its wages. Therefore, they cannot be considered as a source for a possible, permanent replacement for those persons engaged in unskilled work who will be leaving the service sectors because they get beyond the able-bodied age. Their subsequent utilization requires the organization of special retraining, which it would be most feasible to set up as applied to the needs of servicing new equipment and technology. For persons entering upon the pre-pension age (for women, 50--54 years old, and for men 55--59 years old) organizing special retraining would, obviously, be unfeasible. Nevertheless, we must provide for organizing their subsequent retraining (after they go on a pension) for utilization in the service field (in those sectors and regions where this is necessary).

Thus, taking into account the actual dimensions of the natural loss of workers employed in industry, construction, and agriculture due to their having passed the able-bodied age, the conclusion can be drawn that **ECONOMIZING ON LABOR AND THE WORKERS FREED UP AS A RESULT OF NTF SHOULD BE REGARDED DURING THE 1986-2000 PERIOD AS THE PRINCIPAL SOURCE OF COMPENSATING FOR THE LEAVING BY A PORTION OF THE WORKERS FROM THE PRODUCTION SPHERE BECAUSE THEY HAVE PASSED THE ABLE-BODIED AGE (GONE ON A PENSION).** [printed in boldface for emphasis in original]

In evaluating the prospects for freeing up working personnel in industry, construction, and agriculture during the 12th Five-Year Plan, it should be noted that during this period we must anticipate activation of this process primarily as the result of a more complete mobilization of organizational-economic reserves for increasing labor productivity, reserves which do not require large capital investments (on condition that the present economic mechanism is restructured onto the rails of intensifying production). This does not mean that during the period in question there will be no freeing up of manpower in connection with the development of scientific and technical progress.

According to our evaluation, the scope of freeing up workers during the 12th Five-Year Plan will not exceed the number of those passing through the able-bodied age and onto a pension. Therefore, solving the problems of job placement of freed-up workers in these sectors is possible fundamentally on an intra-sectorial level within the framework of the existing organizational forms of redistribution, retraining, and upgrading the workers' skills.

As regards the participation of the freed-up workers in the inter-sectorial process in connection with the restructuring of the sectorial employment structure and the changes in the territorial deployment of production, it will be provided as an additional channel for ensuring that the service sectors have sufficient manpower.

Freeing up workers will likewise occur in the field of servicing production and the population. However, the scope of this process will be substantially less than the additional need for personnel necessary to replace the retirees and for expanding the employment in these sectors.

During the period 1991-2000 the importance of the factors of freeing up working personnel must change as a result of the major speed-up of scientific and technical progress and the expansion of its scope. The influence of NTP will touch upon a large range of occupational groups of workers in connection with expanding the sphere of introducing into production types of equipment and technology which are new in principle. By the period in question, therefore, it is necessary to complete the improvement of the organizational forms which have already taken shape for redistributing and retraining workers, as well as allocating retraining to a relatively independent sub-system of vocational-technical instruction.

Redistribution of the anticipated increase in the number of employees by means of altering the directions of the flows of the initial distribution of the able-bodied population is a complex, multi-leveled problem, the solution of which requires working out a complex of mutually related questions. This pertains to making more precise the directions of vocational guidance for school-children, the distributional proportions for the graduates of secondary schools--by types of further instruction, strengthening the justification of the feasible proportions of the sectorial distribution of the increases in the number of employees in the national economy, the nature and scope of the combination and utilization of the work by pensioners, the development of flexible forms of employment, improvement of wages, etc.

In determining a strategy for freeing up and redistributing working personnel for the period extending until the year 2000, it is important to keep in mind the need to change the attitude of regarding them as simply a consequence of the NTP--an attitude which has taken shape in the practice of planning and regulating the given processes. Transforming labor resources into a limiting factor of economic growth requires the conversion to a conscious formation of the amounts of working personnel to be freed up and regulation of their redistribution and retraining. The magnitude of the freeing up must become a targetable function of NTP which must be included in the system of plan and accounting indicators. Nevertheless, the system which has evolved for keeping track of the effectiveness of introducing measures with regard to new equipment does not ensure a full evaluation of the magnitude of economizing on living labor and freeing up manpower by means of NTP.

Scientific and technical progress in the national economy is implemented, for the most part, by means of retooling production, modernizing and expanding existing enterprises, and by means of new construction. The measures regarding the retooling of industrial production to be included under the section entitled "Development of Science and Technology" encompass only one-fifth of the capital investments to be allocated for industrial development. Therefore, the indicators of economizing on living labor from introducing these measures do not reflect the total scale of its savings. Remaining unaccounted for are the amounts of the savings in living labor and freeing up manpower as a result of the modernization and expansion of existing enterprises.

The lack of methodological development with regard to this problem complicates the evaluation of the over-all scope of the savings on living labor, factors which are important for the purpose of planning the anticipated volumes of freeing up, redistributing, and retraining working personnel.

The indicator called "provisional freeing up of workers," as applied in the practice of keeping track of the effectiveness of measures dealing with new equipment (Accountability Statistics Form No 10-nt), reflects the magnitude of the labor savings only partially. The total dimensions of the living labor savings as a result of the development of scientific and technical progress must be evaluated according to the following two indicators--the "provisional" and the "actual" freeing up of workers. The former is used when there are equal growth rates for labor productivity and the volume of production output (operations); also when the growth rate of labor productivity lags behind that of the increase in the volume of production output (operations), and when the living labor savings are combined with a growth in the demand for manpower.

The actual freeing up of workers occurs when jobs are eliminated. However, the indicator called actual freeing up of workers is not utilized either in keeping track of the results of introducing new equipment or of calculating its effectiveness. It is included among those indicators which are used for evaluating the results of the Shchekin and other methods of providing incentives for living labor savings (through an entire aggregate of factors).

Analysis of the trends and scope of living labor savings according to the "provisional freeing up of workers" indicator as a result of introducing scientific and technical measures has revealed that during the last few years, instead of large-scale measures, in many cases only insignificant changes in equipment, technology, and production organization have begun to be introduced; the "cost" of freeing up one worker has more than doubled, which, to a certain extent, is connected with an outstripping rise in prices for new equipment, as compared to the increase in the productivity of machinery and equipment.

Furthermore, the annual economic effect, as calculated per each measure introduced, remains unchanged, inasmuch as it is the fundamental indicator for which workers participating in the introduction of new are awarded bonuses; it is convenient for an enterprise to have the status of a "provisional freeing up of workers" and to lower its calculated dimension out of a fear of accounting for a receivable living labor savings when planning the labor indicators (the tasks assigned with regard to growth in labor productivity and limits on numbers).

Under present-day conditions actual freeing up of manpower manifests itself, for the most part, in the form of a decrease in the turnover with regard to the acceptance of personnel at an enterprise in comparison with the turnover with regard to their leaving. For example, if at an enterprise the number of industrial-production personnel at the beginning of a year amounts to 2500 persons, while the absolute freeing up is planned to amount to 50 workers, then it can be ensured with a manpower turnover with regard to leaving of 300 persons and an acceptance turnover amounting to 250 persons.

Proceeding from that role which has been relegated to the actual freeing up of personnel, it is necessary, in our opinion, to supplement the methodological

documents for working out plans for economic and social development at all levels by means of an indicator to be called "number of actually freed-up workers," and to include it in the following sections: "Planning the Development of Science and Technology," "Planning the Effectiveness of Social Production," "Planning the Increase in Labor Productivity, Wages, and Utilization of Labor Resources." This indicator should also be included in all the targeted, comprehensive, scientific and technical programs being worked out.

It is also feasible to provide for an appropriate accountability with respect to the indicators called "number of actually freed-up workers, including those employed in manual labor" and the directions of their movement in reports on labor and on the introduction of new equipment; all indicators characterizing the living labor savings and the freeing up of manpower should be reflected in an integrated form of accounting and accountability (quarterly, annual); when conducting the regular, simultaneous accounting of the occupational composition of the workers, we should provide for information on the sex, age, and educational level of the workers, including those who are performing manual labor (in order to obtain derived information necessary in providing grounds for justifying the trends toward improving the redistribution and retraining of the freed-up working personnel).

Thorough study of the forms for implementing live labor savings has revealed that the scope of actual freeing up of workers is still not very large. Their redistribution, retraining, and job placement have not caused any particular difficulties up to the present time, inasmuch as the net amount of workers leaving enterprises (for all reasons) has substantially exceeded the magnitude of the actual freeing up of workers.

The significant increase in the scope of freeing up working personnel in the future and the simultaneous growth in the demand for workers having a comprehensive, multi-profiled occupational specialization are requiring a substantial rise in the socially necessary level of personnel skills. And under such conditions the training of freed-up workers will no longer be capable of being successfully conducted with the aid of the intra-plant forms of instruction which have evolved. Therefore, the need will obviously emerge for creating a system of plant, inter-plant (sectorial and regional) courses, inter-plant training-course combines, for organizing in associations and at enterprises, in sectorial ministries and departments a broad-based network of courses, divisions of evening-shift PTU's [vocational-technical schools], and training course combines for training workers to be freed up with time off or without time off from the production line.

In our opinion, enterprises ought to key on organizing retraining of workers in the mass occupations requiring middle-level skills. It seems rational to organize at the inter-plant level re-instruction in the complex occupations requiring high skills for related enterprises, which, in a number of cases, could be feasibly carried out at the base of production associations manufacturing types of equipment and engineering systems which are new in principle. It is important to provide an expansion of the service for training and upgrading the skills of personnel at manufacturing enterprises and for creating their motivation for organizing the re-instruction of workers at enterprises--the customers for the most up-to-date equipment.

At the sector's educational centers, as well as on the inter-sectorial level, we must re-instruct workers in a wide range of occupations for their subsequent territorial-sectorial and inter-sectorial redistribution. In order to teach young persons being freed up particularly complex occupations, it is feasible to create special groups at secondary PTU's. Special sub-divisions are necessary which would carry out educational-methodological and organizational supervision over the system of retraining workers subject to being freed up (taking into account their age, education, sex, and occupational background).

The level of planning in redistributing working personnel to be freed up beyond the limits of the enterprises is still not high. The local job-placement services do not yet have steady contacts with enterprises regarding working out measures in the field of retraining and redistributing workers who are being freed up, although with respect to methodology they are fully trained to carry out such work. In the future, such an organization of redistribution will not meet the interests of either the working people or those of society. What will be required is a consistently followed rise in the level of organizational work with regard to including these persons in work in other enterprises and other localities, the adoption of appropriate normative-legal acts with regard to materially providing for the workers to be freed up both for the period of re-instruction and directly during the job-placement process. This must be begun, obviously, as early as during the 12th Five-year Plan with an expansion in the use of the transfer form, taking into consideration the fact that the over-all scale of freeing up workers will be increased and their intra-sectorial redistribution intensified.

During the 1990's, with the expansion of the scope of the inter-plant redistribution of workers in order to ensure the rational and operative deployment of the workers being freed up in the national economy, taking into account the interests of the working people, the participation of the job-placement service will be required. It should be actively included in the organization of work on accumulating information concerning the anticipated scope of freeing up workers beyond the limits of the enterprises, thoroughly studying their qualitative characteristics in order to compile the structure of the demand of enterprises and organizations of a region for working personnel and existing vacancies, with regard to conducting the vocational re-orientation of the workers being freed up.

It is also necessary to precisely define the legal status of various categories of workers to be freed up, taking into account the activation of NTP (workers engaged in heavy manual labor, skilled workers, persons of prepension age, office employees, etc.). A particular solution is anticipated for problems of the inter-regional, including the inter-republican, redistribution of working personnel, improvement of the forms of organizing this process on the sectorial and territorial levels of administration. Accordingly, there is a need for a functional and high-quality re-structuring of the job-placement service in the direction of creating a unified system of vocational guidance and job placement with a wide network of multi-functional regional units, including centers for the accounting and distribution of manpower. On a broader plane what we are talking about is the creation of an integrated system for administering the distribution and redistribution of labor resources, as well as the delineation of the functions of the units included within its composition, taking into account the new tasks in the field of ensuring full and optimal employment for the population under the conditions of NTP.

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LABOR

INCREASE IN LABOR RESOURCES IN NON-PRODUCTIVE SPHERE

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[Article by A. Babayev, candidate of economic sciences: "The Efficiency of the Nonproduction Sphere"]

[Text] The socioeconomic efficiency of social production under socialism depends to a substantial degree on the functioning of the nonproduction sphere. Until recently efficiency of this sphere was examined for the most part from the standpoint of expenditures to maintain it. In recent years economists have come to the conclusion that the nonproduction sphere has an effect on increasing the efficiency of material production and makes a significant contribution to realizing the highest goal of socialism. Solving the problems of the inefficiency of the nonproduction sphere should in present conditions also be approached from this standpoint.

As is well known, the economic efficiency of social production is viewed in two aspects: the technical-economic (general economic) aspect; and the socioeconomic aspect. This approach is determined by the fact that any method of production represents the unity of two sides: production forces and production relations. The technical-economic efficiency of production primarily expresses the results of the functioning of production forces. It is determined from the standpoint of the simple process of labor while abstracting from the social form, and growth in social labor productivity acts as the criterion here; this is reflected above all in the growth in national income per person employed in material production.

The socioeconomic efficiency of production is determined by the character of production relations, the system of specific economic laws of the given method, and above all its basic economic law. A.A. Sergeyev justifiably notes, "Technical-economic efficiency is directly related to the operation of the universal law of conserving time, while socioeconomic efficiency is directly related to the basic economic law of formation."¹ This methodological approach to analyzing economic efficiency is also valid in regard to the nonproduction sphere.

As is well known, under socialism the law of conserving time operates "within the framework" of the basic economic law which is inherent in the communist method of production. Therefore, although growth in efficiency signifies

conserving work time, not every measure which helps do this is efficient. Socialist society is not indifferent to which path and which means are used to achieve this economy; the correspondence of these paths and means to the tasks of realizing the highest goal of socialist production is of paramount significance.

In the nonproduction sphere the operation of the law of conserving time has its own specific features. They are related to the uniqueness of the labor which functions here, its direct orientation to human beings, and the fact that many types of labor performed in this sphere are individual types. It should be added that the results of the activities of most of the sectors of the nonproduction sphere appear not as things, but rather as useful effects. The general approach to the efficiency of the nonproduction sphere is: that development which helps realize the highest goal of social production, and with lower expenditure of labor, is efficient. And it is important in light of this that cutting expenditures in the nonproduction sphere be accompanied by the higher quality of services rendered and that it helps increase free time. In each given period society can allocate certain, in some way or another limited, resources for developing the nonproduction sphere. Therefore, the problem of their rational, effective use is always timely. K. Marx noted that the concept of socially necessary expenditures of labor also applies in the nonproduction sphere. No more carpentry labor should be expended to manufacture a table than is necessary to produce the table. In exactly the same way, when mending a sick body no more labor should be expended than is necessary to treat it. Thus, lawyers and doctors should expend only the labor necessary to produce their "nonmaterial products."²

The criteria of the socioeconomic efficiency of the nonproduction sphere are directly related to realizing the highest goal of socialist production and should reflect the degree of satisfaction of the working people's needs for nonmaterial benefits and services. We share the viewpoint according to which the socioeconomic effect of social production in a developed socialist society is adequately expressed in the society's aggregate fund of personal consumption. It not only includes material benefits, but also services of the nonproduction sphere which directly satisfy the personal needs of working people and insure their material well-being and all-round development as individuals.

In order to define the role of the nonproduction sphere in creating the aggregate fund of personal consumption, all nonproduction sectors must obviously be divided into two groups: those which satisfy personal needs (education, health care, culture, art, housing and municipal services, and domestic services) and those which satisfy specific social needs (state management, protection of public order, and financial-credit and insurance institutions).³ The first group of sectors which render paid and unpaid services aimed at physical and spiritual development broadens the boundaries of the personal consumption fund. The activities of sectors which belong to the second group, insuring the maintenance and regulation of the existing system of social relations and thus just as vitally necessary, nonetheless have no direct relation to creating the aggregate personal consumption fund. This circumstance should be considered when determining the efficiency of the nonproduction sphere.

Increased productivity of social labor creates a specific effect in the form of an opportunity to liberate some producers for employment in the nonproduction sphere. Some authors believe that this effect can be expressed as product created by the workers in the nonproduction sphere.⁴ In our opinion, this position contains a certain contradiction. If it is followed through consistently, one can come to the conclusion that the nonproduction sphere is able to function completely on its own base since product is created in it. Nonetheless, let us repeat that specific use values -- services -- are the result of the functioning of the nonproduction sphere. In our view, their increase can also characterize the increase in the efficiency of material production in an indirect way. But the expansion of the scope of activity of the nonproduction sphere in this case appears as a specific socioeconomic result of material production. Accordingly, the aggregate effect of material production and the nonproduction sphere related to all expenditures of social production forms its socioeconomic effectiveness.

Inasmuch as the functions of many sectors of the nonproduction sphere are related to human beings and directly aimed at them, one can speak of its social effect in the narrow sense, which means the effectiveness of the nonproduction sphere from the standpoint of achieving social results -- a rise in the knowledge and cultural level of the population, improvement of conditions of labor and rest, people's increased capacity for work, more free time, liberation of women from home labor, and so on.

Nonetheless, the social effect is related to the economic effect: investments in the nonproduction sphere also give an economic return, affecting the development of material production. Thus, capital directed to education has an indirect effect on the creation of new equipment, the improvement of production organization, and hence, on increased labor productivity. The increased educational level of working people appears in the increase in national income, since the skilled labor they perform acts as labor of greater complexity which creates greater value. Investments in the sphere of health care, performing an important social task -- fortifying the health of the people -- ultimately affect economic indicators as well: production losses decline and labor productivity rises thanks to reduced absenteeism at work because of illness.

The development of such spheres as housing and municipal services, trade, public catering, and children's institutions have a large influence on increased production efficiency. At the present time, expenditures of labor to manage the household and self-service total almost 150 billion man-hours per year on a national scale; this is about 62 percent of all time expended in the social economy. Realizing the existing opportunities to develop these sectors of the nonproduction sphere will already make it possible in the near future to reduce these expenditures by one-half⁵ and accordingly increase the fund of free time and create more favorable conditions for active recreation and studies; this cannot fail to have an effect on the efficiency of social production. It is calculated, for example, that reducing nonrational expenditures of nonwork time by 1 percent is accompanied by a 0.16 percent increase in labor productivity.⁶

In this way, the social effect achieved through developing the nonproduction sphere to a certain degree lends itself to strictly economic quantitative evaluations.⁷ In our opinion, the decisive significance of social results should be emphasized when the efficiency of the nonproduction sphere is evaluated. Nonetheless, a purposeful evaluation of the additional economic effect of social result is also possible from a theoretical and practical position.

Cases are frequent where the social and economic effects of developing the nonproduction sphere prove to move in different directions. Practices confirm that high economic efficiency can sometimes be achieved with negative social results, while obtaining positive social results can sometimes be accompanied by increased expenditures and hence a decline in growth of national income.

The main difficulty with the quantitative evaluation of social effect is that in most cases it is manifested in different physical indicators that cannot be compared. For example, it is difficult to directly compare social effect which is expressed in a lower sick rate with the effect expressed in liberated additional time for increasing the level of education and culture and for increasing working people's recreation time. In this type of case it would be advisable to use the monetary form of evaluating social results and above all the direct results of the labor of people working in the nonproduction sphere -- services.

At the present time Soviet economists are proposing a number of methods of monetary evaluation of services. In light of this, some authors assert that value is also created in the nonproduction sphere which should be included in national income.⁸ We do not share this position. Nonetheless, it still does not follow from the fact that value is not created in the nonproduction sphere that the results of the labor of its workers cannot be expressed in monetary form. Services rendered by the nonproduction sphere and acting as consumption values which do not take material form are exchanged for both products of production and for other services and thereby receive a monetary form of expression. "The value of services... of nonproduction workers," wrote K. Marx, "was determined and could be determined by the same (or similar) method as the value of production workers is determined. And this means precisely production costs necessary to maintain them or produce them."⁹ A monetary evaluation of the results of the labor of workers in the nonproduction sphere, without expressing value, allows the material expenditures and expenditures of labor to create services to be evaluated.

Monetary evaluation of the volume of services is widely used in planning practices where paid and unpaid services are calculated in different ways depending on their nature. The volume of services of those sectors where paid servicing predominates includes the earnings of the corresponding enterprises and institutions, that is, the sum of material expenditures, wages, and profits. But if services are offered free or on privileged conditions, then their volume is determined according to the expenditures of the state and cooperative organizations to maintain the institutions of these sectors and material expenditures and wages are included in it,¹⁰ that is, without taking into account the expenditures of the labor of workers engaged in these sectors of the nonproduction sphere which are not compensated for by payment. As a

result, the proportion of unpaid and privileged services in the society's aggregate personal consumption fund is not fully taken into account. Therefore, when the volume of consumption of material goods and services by the population is calculated, the special task of "completing the evaluation" of unpaid and privileged services arises.

As we have already noted, the nonproduction sphere has an impact on the results of production and the increase in social labor productivity due to the higher level of skill and education of workers and the maintenance of their health. Therefore, the volume of services can be evaluated on the basis of the level of labor productivity achieved in the sphere of material production. The essence of this method is to determine what volume of social product would the workers of the nonproduction sphere create if they worked in material production. Using this method, we made a calculation of the socioeconomic and technical-economic efficiency of the nonproduction sphere in the USSR in 1960-1983 (see Tables 1 and 2).

Table 1. The Socioeconomic Efficiency of the Nonproduction Sphere in the USSR in 1960-1983 (actual prices)*

<u>Years</u>	<u>Monetary</u> <u>Evaluation of</u> <u>Use of Services</u> <u>(by expenditures</u> <u>of live labor)</u>	<u>Number of People</u> <u>Engaged in Non-</u> <u>Sphere</u>	<u>Efficiency of Nonproduction</u> <u>Sphere**</u>		
			<u>Rubles</u>	<u>%</u> <u>Compared to</u> <u>1960</u>	<u>% Compared</u> <u>to Previous</u> <u>5-Year Plan</u> <u>Period</u>
1960	21.0 billion	13.8 million	1,522	----	----
1965	31.3 billion	17.8 million	1,758	115.5	115.5
1970	53.9 billion	21.8 million	2,473	162.5	140.7
1975	71.8 billion	25.7 million	2,794	183.6	113.0
1980	96.3 billion	29.2 million	3,298	216.7	118.0
1983	117.8 billion	30.4 million	3,875	254.6	----

*Quoted from: "Narodnoye khozyaystvo SSSR v 1964 g." [The USSR National Economy in 1964], Moscow, 1965, pp 419, 575; "Narodnoye khozyaystvo SSSR v 1970 g." [The USSR National Economy in 1970], Moscow, 1971, pp 510-511; "Narodnoye khozyaystvo SSSR v 1975 g." [The USSR National Economy in 1975], Moscow, 1976, pp 440, 563; "Narodnoye khozyaystvo SSSR v 1982 g." [The USSR National Economy in 1982], Moscow, 1983, pp 287, 364, 365, 378; "Narodnoye khozyaystvo SSSR v 1983 g." [The USSR National Economy in 1983], Moscow, 1984, pp 305, 385-386, 407.

**The dynamics of the socioeconomic efficiency of the nonproduction sphere in the USSR was obtained by dividing the volume of the use of services expressed in monetary form by the number of workers in the nonproduction sphere.

Table 2. The Technical-Economic Efficiency of the Nonproduction Sphere in the USSR in 1960-1983 (actual prices)*

<u>Item</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>Year</u> <u>1975</u>	<u>1980</u>	<u>1983</u>
Volume of Services Rendered to the Population, in billions of rubles	27.5	42.0	70.8	96.1	129.7	158.3
Number of Workers in the Non-Production Sphere, in millions of people	13.8	17.8	21.8	25.7	29.2	30.4
Material Expenditures in the Nonproduction Sphere, in billions of rubles	10.6	15.4	23.4	34.8	48.0	53.0
Fixed Nonproduction Capital, in billions of rubles	172	241	329	451	592	689
Services ("Yield"), in rubles:						
per Worker Engaged in Non-Production Sphere (Labor Productivity)	1,993	2,360	3,248	3,739	4,442	5,207
per Ruble of Material Expenditures	2.59	2.73	3.03	2.76	2.70	2.99
per Ruble of Fixed Production Capital	0.16	0.17	0.22	0.21	0.22	0.23

*Quoted from: "Narodnoye khozyaystvo SSSR v 1983 g." [The USSR National Economy in 1983], pp 47-48, 385-386; IZVESTIYA AN SSSR, SERIYA EKONOMICHESKAYA, No 5, 1975, p 43.

The data from Table 1 shows that from 1960 through 1983 the socioeconomic efficiency of the nonproduction sphere in the USSR rose by 154.6 percent. And the highest rate was noted in the 8th Five-Year Plan period -- 40.7 percent.

We also calculated the technical-economic efficiency of the nonproduction sphere on the basis of comparing the volume of services rendered to the population in a monetary evaluation with the number of people engaged and the volume of material resources directed to maintain and develop it (see Table 2). The data from Table 2 shows that in 1960-1983 the volume of services calculated per ruble of material expenditures increased by 15 percent, while the volume of services calculated per ruble of fixed production capital rose by 44 percent. Labor productivity in the nonproduction sphere during this period increased by 161 percent.

The calculations we made show that the rate of growth in the efficiency of the nonproduction sphere lags behind the rate of growth in the efficiency of

material production. For the most part, limited opportunities to mechanize and automate labor in nonproduction sectors account for this. Thus, the level of the capital-labor ratio here is 1.63 times lower than [about three-fifths] the level of material production.¹¹ An important feature of the nonproduction sphere is that the interchangeability of both fixed capital and of labor is lower than in material production. The development of this sphere for the most part occurs through increased employment. The features mentioned pose the acute problems of economizing labor in the nonproduction sphere, the need for rational use of labor resources, and the intensification of service processes. The solution of these problems does not remove from the agenda the question of the level of material equipment of nonproduction sectors and of the pressing need for introducing means of comprehensive mechanization, primarily for auxiliary activities in them.

FOOTNOTES

1. "Osnovnoy ekonomicheskiy zakon sotsializma" [The Basic Economic Law of Socialism], edited by V.N. Cherkovets, Moscow, 1978, p 174; also see: G.I. Latysheva, "Osnovnoye otnosheniye i vysshaya tsel' obshchestvennogo proizvodstva pri sotsializme" [The Basic Relation and Highest Goal of Social Production Under Socialism], Moscow, 1981; V.N. Cherkovets, "Sotsializm kak ekonomicheskaya sistema" [Socialism as an Economic System], Moscow, 1982.
2. K. Marx and F. Engels, "Sochineniya" [Works], 2nd edition, Vol 26, Part I, p 260.
3. Specific social needs means needs of a historically transient nature which are characteristic of the first phase of the communist method of production.
4. See: B.V. Rakitskiy, "Obshchestvennyye fondy potrebleniya kak ekonomicheskaya kategoriya" [Social Consumption Funds as an Economic Category], Moscow, 1966, p 54; V.A. Medvedev, "Obshchestvennoye vosproizvodstvo i sfera uslug" [Social Reproduction and the Services Sphere], Moscow, 1968, p 116; and others.
5. See: "Ekonomika razvitogo sotsialisticheskogo obshchestva" [The Economy of the Developed Socialist Society], Moscow, 1977, p 382.
6. See: V.K. Poltorygin, "Razvitiye material'no-tekhnicheskoy bazy neproizvodstvennoy sfery" [The Development of the Material-Technical Base of the Nonproduction Sphere], Moscow, 1983, p 13.
7. "Social effect," writes Academician T.S. Khachaturov, "in turn insures a secondary economic effect which influences the result of social production on the whole" (T. Khachaturov, "The Efficiency of Socialist Social Production" in VOPROSY EKONOMIKI, No 7, 1980, p 8). According to some calculations, in present conditions one-third of the rise in social labor productivity is accomplished through the development of the services sphere (see: V.Ye. Komarov and V.D. Ulanovskaya,

"Sotsial'no-ekonomicheskaya effektivnost' sfery uslug" [The Socioeconomic Efficiency of the Services Sphere], Moscow, 1980, p 115).

8. See: E.M. Agabab'yan, "Ekonomicheskiy analiz sfery uslug" [An Economic Analysis of the Services Sphere], Moscow, 1968, pp 85-98; V.Ye. Komarov and V.D. Ulanovskaya, op. cit., pp 21, 51.
9. Marx and Engels, op. cit., Vol 26, Part I, p 141.
10. See: "Metodicheskiye ukazaniya k razrabotke gosudarstvennykh planov ekonomicheskogo i sotsial'nogo razvitiya SSSR" [Methodological Instructions on Developing State Plans for the Economic and Social Development of the USSR], Moscow, 1980, p 676.
11. See: "Narodnoye khozyaystvo SSSR v 1982 g." [The USSR National Economy in 1982], Moscow, 1983, pp 46, 364-265. Here the fixed capital of the nonproduction sphere is considered with housing assets excluded.

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12424

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LABOR

RESULT OF WAGE INCENTIVE TO BOOST RETAIL TRADE EXAMINED

Moscow SOVETSKAYA TORGOVLYA in Russian 5 Sep 85 pp 1-2

[Article by Ye. Danilov, chief, Labor Organization and Wage Administration, Mintorg USSR: "Wages and the Goods Turnover; How to Interest Retail Trade Workers in Increasing Goods Sales"]

[Text] The editors' mail contains a lot of letters whose authors ask us to describe the systems presently in use for paying wages to workers in state retail trade, and they are asking questions on how to compute the wages in this or that situation.

Ye.I. Danilov, chief of the Labor Organization and Wage Administration, USSR Ministry of Trade [Mintorg] today tells about the existing systems and kinds of wages paid, their advantages and disadvantages. Answers to specific questions will be given as advice from specialists, to be published in the newspaper.

Two systems for paying wages are in use in our country's state trade enterprises: the timework-bonus system and the piecework-bonus system. Moreover, bonuses in both cases depend upon fulfilling the plan for goods turnover and encourage the workers to overfulfill it. You see, for every percentage point of growth in trade turnover above the plan, in the majority of cases, the workers are paid up to five per cent of their monthly salary or wage rate.

But which of the two systems cited is preferable? In our opinion it is undoubtedly the piecework-bonus system--inasmuch as here not only the bonus but also the wages are tied in with the number (the sum) of goods sold. Bearing witness to the popularity of this system is the fact that it is presently used for half the trade workers.

There are several kinds of piecework-bonus payments: for 100 rubles of actual goods turnover; for the amount of goods sold; for the percentage of fulfillment of the goods turnover plan; for the number of bottles or cans taken; and per-item valuation. The manager of the enterprise has the right to choose one kind of piecework payment or another, with the consent of the trade union committee.

Now let's talk a little about each of these kinds separately. In our view, piecework wages for the number of articles sold stimulates expanded sales to a greater degree than the others. N.M. Yelisseyeva, director of Shoe Store "Obuv" No 18 of the First Minsk Promtorg [Manufactured Goods Trade Organization], related to me that when they switched to this kind of wage payment in January of the current year, the sales clerks began to work more energetically, and began to actively serve the shoppers. It is important that the system of wage payments be simple and understood by everyone: I've sold a pair of shoes, and thereby I've earned a certain amount. In other words, the more I've sold the more I've earned. Therefore, there are now no sales clerks in the store who pass the shoppers by indifferently. In turn, Yelisseyeva herself is constantly concerned that there should be more of the shoes which are in demand in the sales area. And she does this not only for the sake of the earnings of her fellow-employees; her own wages also depend on the amount of goods sold. And this is the result: in the first half of 1985, the store's goods turnover increased by 8.4 per cent as compared with the same period last year; labor productivity increased by 19.4 per cent and wages by 12.9 per cent; and, it became possible to reduce the size of the staff.

In Vilnyus, in 1982, the system of wages per unit of articles sold was introduced at four stores. It proved itself so well, that two years later every shoe store and section has switched its workers to this pay system. Analysis of their activities has shown that in the first year the number of shoes sold increased to 90,000 units, and on the average each worker sold 28.5 per cent more; and--it became possible to reduce the number of personnel by 23 persons. The average monthly goods turnover per person grew by 21.7 per cent, and average wages by 13.4 per cent. This type of wage system has also had a positive effect on keeping the cadres on the job. Whereas in the past worker turnover throughout the city promptorg organization as a whole was 15 per cent, in the shoe stores it was no more than 5.0, and this was chiefly due to retirement and other valid reasons.

In the Lithuanian SSR they are also introducing piecework wages per meter of fabric sold. Since 1 June six stores have switched to this system. A wage rate per article clothing sold is also being worked out and is under evaluation.

However, in spite of its obvious advantages payment of wages for the amount of products sold is still spreading slowly in the branch. As it turns out, the main reason for this is the complexity of quantitative accounting. But introduction of automated control systems will greatly simplify accounting. Thus, it is sensible to expand in every way the use of such wage payments.

Piecework wages per 100 rubles of actual goods turnover also provides a certain effect. Its principle is very simple: I've sold goods for a large sum; I've earned more. But there are shortcomings to this type of wage payment. In the first place, fluctuations in the goods turnover by month of the year leads also to the same fluctuations in wages. Secondly, in an attempt to increase their wages, sales personnel are apt to foist more

costly articles on the shoppers. Therefore, wage payment per 100 rubles in goods turnover is more widespread in small retail trade, when seasonal trade is organized in the streets.

Wage payment for the percentage of fulfillment of the plan for goods turnover has become much more widespread. But this type of payment has a serious shortcoming: it does not reflect the labor input; in addition, the collective does not have an interest in intensive goods turnover plans. You see, the lower the plan and the higher the percentage of its fulfillment, the higher are their wages.

For the purposes of further improving wages, per-item wage rates have been worked out by the Leningrad branch of the All Union Scientific Research Institute for Trade Economics and Control Systems. They will ensure equal pay for equal work results and that growth rates in labor productivity will outstrip an increase in wages. And, what is very important, such wage rates will provide the workers in the stores an incentive for continually expanding the goods turnover.

For wage payments to workers in non-food stores, the wage rates are calculated per full 100 rubles in actual goods turnover for 91 groups and subgroups of goods and for the most widespread kinds of specialized stores, departments and sections. Also considered are the forms of goods sales. These wage rates have been established according to calculations which allow for the minimum volume of goods turnover per employee for a full month's work at piecework wages which corresponds to the level of the monthly salaries. But with an increase in output per worker, higher wages are provided by the wage rates; thus, if output increases by 1.0 per cent, the piecework wage increases by 0.8 per cent.

Wage rates are calculated per individual brigade member, which includes the heads of the stores, departments and sections; their deputies; and the sales clerks. In stores where goods sales are carried out by the self-service method, the brigade also includes controllers and controller-cashiers.

Wages are calculated by multiplying the brigade's monthly goods turnover by the wage rate, and is distributed among the brigade members according to established procedure.

Individual wage rates are established for cashiers. They are calculated on the basis of the actual monthly goods turnover by one cashier for a full month. In order to determine a cashier's wages, the wage rate is multiplied by the goods turnover fulfilled by a given cashier for the actual time she has worked.

For paying wages to workers in food stores, the wage rates are determined according to goods groupings, in accordance with the list of goods which are considered part of the retail goods turnover. At the same time, the most widespread process for their sales is taken into consideration. These wage rates are defined on the basis of the monthly salaries established for the workers in the stores, taking into consideration the labor intensiveness of

the goods sales, the average unit cost of the goods in every group of goods, the average purchase cost, the average time for servicing a single customer and the average number of individual items in a purchase.

It should also be noted that the managers of trade organizations (enterprises) have been given the right to coordinate with superior organizations and the trade union committee when it is necessary to increase or decrease the size of wage rates, up to 20 per cent, depending on the specific working conditions.

Changing workers over to piecework wages with per-item wage rates should not be done without advance preparation. First it is necessary to explain in the collectives the essence and the significance of this kind of piecework wages and its advantages, in order that it becomes clear to every employee. For managers of trade enterprises and accounts clerks, it is sensible to conduct appropriate seminars.

The introduction of per-item wage rates took place on 1 June, this year. In the first month of its use, it was shown that these rates promote both increasing the goods turnover, and an increase in the wages for the store workers.

Any of the above-mentioned wage systems is more effective in promoting the fulfillment of the goods turnover plan if it is combined with the brigade form of labor organization and incentive, and if the coefficient of labor participation [KTU-koeffitsient trudovogo uchastiya] is employed. At the same time there is improved service to the populace; labor productivity increases; and the number of workers is reduced. In Belorussia, 56 per cent of the workers in retail trade who are on piecework wages have been united in brigades, in which KTU is employed. In 1984 this permitted provisionally releasing 600 people, providing an economic effect of 568,000 rubles, and significantly reduced personnel turnover. Whereas throughout the Belorussian Mintorg system as a whole, it amounted to 11.8 per cent, in the brigades which employ KTU, turnover was 6.5 per cent.

A good advertisement for introducing KTU is the highly significant wage difference for the same amount of work time, with different work attitudes. Thus, in Food Store No 6 in Druskininkay, a sales clerk with a KTU of 1.6 received 50 rubles more than another whose KTU was 0.4. And a controller-cashier whose KTU was reduced to 0.7 for a careless attitude toward shoppers received 28 rubles less than he would if his KTU were 1.0. One can cite a number of similar examples.

The effect of the brigade form of labor organization and incentive is obvious. And if it has not become widespread everywhere, this is explained by a bureaucratic approach to its introduction at certain enterprises. There are quite often instances where a KTU is established without taking into account the real contribution of each worker to the overall result, or where an identical KTU is established for each member of the brigade in order not

to spoil relations among the comrades in the brigade. It also happens that in pursuit of higher extra earnings, a brigade is intentionally understaffed, which leads to worsening the quality of service to the consumers, and non-fulfillment of planned tasks by the brigade collectives.

The wage systems which exist at the present time provide the capability for materially interesting the workers in increasing the sale of goods, in the growth of goods turnover, and in energetically serving the consumers. These systems must be more purposefully and skilfully used.

9006

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LABOR

WORKING TWO JOBS CLAIMS TO CUT LABOR DEFICIT IN BELORUSSIA

Minsk NARODNOYE KHOZYAYSTVO BELORUSSII in Russian No 9, Sep 85 pp 41-42

[Article by A. Kovsher, chief, Organization, Norm-Setting, and Labor-Productivity Administration, BeSSR State Committee for Labor: "Holding Down Two Jobs Is Not a Privilege"]

[Text] In many sectors of the national economy we are feeling a shortage of working hands. In the circumstances which have evolved it is particularly important to make optimal use of the intra-production reserves which exist at every enterprise. One of these is combining occupations and positions. Because, of course, if a machine-tool operator, for example, has expanded the zone of his service, instead of one machine tool, has begun to produce a complete output on two of them, this can be called nothing else but a doubling of the labor productivity. Far from every organizational or technical measure yields such an effect.

Several years ago a procedure was established for paying supplementary wages for fulfilling plans with a lesser number of employees. For the first time the right to supplementary wages was obtained by workers employed in the state and economic administrative organs, at scientific institutions, planning and design organizations, the credit-financing system, in the courts and procurator's offices, as well as junior service personnel within these organizations and enterprises of the production sphere.

The right to supplementary wages for combining occupations in an amount up to 50 percent of the wage rate (salary), which had previously been established for workers in industry and capital construction was now extended to personnel employed at enterprises and organizations engaged in transport and communications, trade, and services. In other words, supplementary wages for work with a reduced number of personnel could be obtained by employees in all sectors of the national economy. The rights of managers at enterprises in the production sectors were expanded--it became possible for them, on their own initiative, to introduce supplementary payments for combining occupations and thereby holding down two jobs. What, however, is considered as holding down two jobs? And when is it permitted?

Combining occupations and jobs of various categories in the production sectors, as well as in all cases in the non-production sectors of the national economy is permitted by means of special lists, approved by the republic's Council of Ministers upon concurrence with the appropriate trade-union organs. Such lists define the range of the workers' occupations, jobs in engineering and technical work, and those serving in other categories, where holding down two jobs is completely justified, and the outlays for this purpose will facilitate the improvement of the work.

The movement to combine occupations and jobs, as well as to expand the zones of service is an objective phenomenon. It has been brought about by the radical changes in production equipment and technology, changes which are creating genuine opportunities for fulfilling the plans with a lesser number of personnel. But this is a complicated process, connected with a great deal of work on improvements in norm setting and labor organization, upgrading the skills of personnel, and improving their placement on the production line.

For example, the introduction of supplementary wages for holding down two jobs must be accompanied by the simultaneous fulfillment of certain conditions. In the first place, work on the basic job and the occupation to be combined must be subject to strict accounting with regard to the inter-sectorial or sectorial norms of service, or to other, technically justified norms of labor outlays. They can be developed at the enterprise itself, and then approved by the higher-ranking economic organization, and coordinated with the trade-union committee. In the second place, the worker must perform his duties on the basic and the combined job with a good degree of quality and on time. Finally, such a holding down of two jobs must be accompanied by a freeing up of workers in comparison with the indicated norms or a decrease in the number of job vacancies, along with the corresponding savings in the wage fund.

But just how do matters now stand with regard to holding down two jobs? The BeSSR State Committee for Labor, in coordination with the Belorussian Trade Union Council, has approved lists of occupations and jobs for workers with regard to which the combining of occupations and jobs, the expansion of the service zones, or the increase in the volume of the work to be performed is permitted. These lists encompass in various combinations more than 750 occupations and jobs! Success in this matter has been assisted, to a large extent, by improvement in the setting of labor norms, the introduction of inter-sectorial, sectorial, and other progressive norms of labor outlays. During the three years of the five-year plan, for example, labor norms have been established for 39,700 time-rate workers and 45,500 engineers, technicians, and office employees for whom norms had not previously been set. The republic's ministries and departments have approved appropriate normative and methodological materials for the sub-departmental enterprises; they have set up a procedure for the material encouragement of workers to hold down two jobs and work with a reduced number of personnel.

At many enterprises specific plans and measures have been developed for lowering the needs for labor resources, an accounting is being conducted on the savings in the wage fund, supplementary payments are being specified for holding down two jobs and for performing the duties of temporarily absent employees. The amounts of the supplementary payments are strictly differentiated,

depending upon the volume of work being performed; instruction in various forms is being conducted for second and closely-allied occupations. This is bearing fruit.

As a result of the increase in the number of "moonlighters" in the national economy of this republic, 25,200 persons have been freed up. Of these, industrial enterprises accounted for 9,500 persons, construction organizations--2,800, trade and public-dining enterprises--2,800, housing and communal-everyday public services--2,800, transport--1,800, agriculture--1,300, health-care and social security--1,700 persons. Thus, of the total number of persons freed up, three-fourths of the workers are accounted for by the production sectors, and of these--half are accounted for by industrial enterprises.

This "moonlighting" movement is likewise being actively developed at the enterprises of the BeSSR Ministry of Trade. In just one year the number of workers and office employees working in expanded service zones or producing increased volumes of work has grown by 2,300 persons, or by more than half. This freed up 490 persons, and the annual economic effect came to 330,000 rubles. Most of the freed-up employees were directed into staffing the newly organized enterprises in the fields of trade and public dining.

The operational experience of the Orsha Linen Combine is interesting. Here combining occupations and jobs has encompassed more than 900 persons. Here "moonlighting" was preceded by a careful and thorough study of the labor organization, an analysis of the load on the equipment and the use of worker time, as well as the working out and implementation of organizational-technical measures to ensure labor productivity under the new conditions. The mandatory conditions for holding down two jobs at this combine are as follows: the optimal division and cooperation of labor, the presence of technical justified service norms and norms of number, the timely instruction of workers in closely allied occupations, effective measures of providing material and moral incentives.

At the Strommashina Plant in Mogilev the number of time-rate workers, thanks to "moonlighting," was reduced by 54 persons, 82,200 rubles of the wage fund were saved, and the increase in labor productivity by means of this factor amounted to 1.4 percent in 1983. Good indicators with regard to increasing production output with a lesser number of personnel have been achieved by many groups of the BeSSR Ministry of the Food Industry, which have made use of the experience of the Shchekino Chemical Combine.

"Moonlighting," however, has not yet been put into practice at many enterprises, although the possibilities for this exist everywhere. By 1 June 1983 at enterprises of the BeSSR Ministry of Installation and Special Construction Work, the BeSSR Ministry of Land Reclamation and Water Resources, and the Belorussian Inter-Kolkhoz Construction Administration the proportion of workers receiving additional wages for holding down two jobs amounted to merely 0.8--2.0 percent, which is several times lower than for this republic's national economy as a whole. This percentage is even lower at the Vitebsk Dairy Industry Production Association, the Minsk Meat Industry Production Association, the Borisovdrev Production Association, the Mogilev Metal-Products Production Association of the BeSSR Ministry of Local Industry, and at the Minsk Bakery-Products Combine.

Incentives for working with a lower number of personnel and for combining occupations are hardly used at all at some enterprises. These include the Minsk Motor-Vehicle Repair Plant of the Avtoremont PO [Production Association] the jurisdiction of the BeSSR Ministry of Motor Transport, the Mogilev Sanitary-Engineering Components and Ventilation-Engineering Components Plants under the jurisdiction of the BeSSR Ministry of Installation and Special Construction Work. At others--the Minsk Confectionary Industry Association, the Minsk Porcelain Plant under the BeSSR Ministry of the Construction Materials Industry, the Krupskaya Rayon Agricultural Equipment Association, the Peat Enterprise imeni Dauman, and the Minsk Technological Metal Structural Components Plant--there are violations of the procedure for establishing supplementary wage payments for holding two jobs. Those workers engaged in "moonlighting" are not provided for by the lists, the supplementary wages begin not from the basic rates but rather from the salaries in accordance with the work being combined, or they are simply padded out.

Shortcomings in setting labor norms are having a negative effect on the widespread dissemination of "moonlighting." To this very day at industrial enterprises labor norms have not been established for 17 percent of the time-rate workers, 16.4 percent of the engineers, technicians, and office employees. Unfortunately, at times there is also a pro forma approach to organizing the holding down of two jobs in the formation of consolidated, mixed brigades, which are paid in accordance with a standardized job authorization. Creation of the new type of brigades requires revision and improvement of the entire system of intra-production planning. In order to facilitate this work, a number of important normative documents have been adopted. However, there are quite a few groups, formally called brigades, in which wages are paid not in accordance with a standardized job authorization. Thereby the material motivation to achieve end results is weakened, while the incentives to upgrade skills and hold down two jobs lose their effectiveness.

Providing incentives for "moonlighting" is inextricably linked with the improvement of setting labor norms in all sectors, revision of obsolete and introduction of progressive norms for labor outlays which correspond to the advanced level of technology and production organization. Improving the setting of norms is an important reserve for fulfilling plans with a lower number of personnel. Moreover, all the savings obtained by this means on the wage fund can be utilized for making supplementary wage payments for holding down two jobs. Herein, for purposes of comparison, inter-sectorial and sectorial norms of numbers are taken, along with standardized work forces, service and earnings norms. Serving as the point of departure at enterprises newly being put into operation is the planned number. In this case the supplementary wages are established only by observing the normative time periods for mastering the capacities.

In those instances when the development of standardized work forces in accordance with the sectorial characteristics is not feasible, savings on the wage fund from lowering the number relative to the staff schedule, as approved by the higher-ranking organization, can serve as the source for establishing the supplementary wage payments. In the production sectors of the national economy, when a freeing up of workers occurs in comparison with the norms the intensity of which is lower than the inter-sectorial or sectorial norms (or in

comparison with the actual number on those jobs where the norms have not yet been established), as much as 70 percent of the savings on the wage fund can be directed into the supplementary wages. As we see, a measure of incentive to hold down two jobs depends upon the quality of the norms and normatives. Here the chief role must be played by the ministries and departments, the administrations and economic services of those enterprises responsible for the status of setting the labor norms.

For engineers, technicians, and office employees in the production sectors of the national economy, as well as for personnel of all categories in the non-production sectors for whose labor it is complicated to set norms, the limiting amount of supplementary wages must not exceed 30 percent of the basic rate (salary). The holding down of two jobs by engineering and technical personnel, as well as by office employees, merits particular attention. It will allow us to increase the effectiveness of their work, reduce expenditures on maintaining staffs, and be flexible in shifting engineers, technicians, and office employees around in the interests of production.

It is necessary that the holding down of two jobs be placed on a planned basis everywhere. Each enterprise must specify the divisions and services where such "moonlighting" can be utilized, work out precise job instructions in order to have an optimal division of functions with regard to the primary and secondary jobs. It is important to regulate the working time and to set up procedures for the work of specialists for whom "moonlighting" is being introduced. Here we cannot manage without standardized plans for the organization of the work places, as well as the mechanization and automation of the specialists' work.

The manpower shortage is a negative phenomenon. The attempt to solve this problem has brought about an influx of new ideas; it has stimulated technical and economic thought, which, in the final analysis, will facilitate progress. But it is important to bear in mind that any innovation must pursue primarily state interests. "Moonlighting," in particular, if it is approached in a pro forma manner, opens up loopholes for various violations. For example, work on setting norms and tallying up wages must not be combined. Nor can a guard be given just any sort of supplementary work, as is done quite often. It must be borne in mind that holding down two jobs is not a privilege, not a means of obtaining easy extra earnings. In addition to facilitating an increase in the effectiveness of social production, it must perform yet another no less important task--that of inculcating a communist attitude toward labor.

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2384

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LABOR

NEW STANDARDS FOR SCIENTIFIC-ENGINEERING PAY SCALE

Moscow TRUD in Russian 23 Jul 85 p 4

[Interview with E. V. Minin, deputy chief, Division of Wages and Economic Work of the AUCCTU: "An Engineer's Pay Scale"; date and place not specified]

[Text] At a conference in the CPSU Central Committee regarding the questions of accelerating scientific and technical progress the great importance of elevating the public awareness of scientific and engineering work was pointed out. A few days later a decree was published by the CPSU Central Committee, the USSR Council of Ministers, and the AUCCTU, entitled "On Improving the Wages of Scientific Workers, Designers, and Industrial Technologists." The editors requested E. V. Minin, the deputy chief, Division of Wages and Economic Work, AUCCTU, to talk about the principles upon which this decree is based.

[Answer] This decree occupies an important place in the system of measures being undertaken in order to make a decisive turn onto the path of production intensification. It provides for an intensification of the material and moral motivation of scientific workers, designers, and industrial technologists to accelerate scientific and technical progress.

Measures are intended for implementation, beginning in 1986, with regard to improving the wages of scientific workers, designers, and technologists at scientific-research institutions, design and technological organizations, production and scientific-production associations and industrial enterprises, as well as academies of sciences--at the union and republic levels.

[Question] What is being changed in the wage system of scientific workers and engineers?

[Answer] Two wage categories instead of three are being provided for scientific workers at scientific-research industrial institutes, the USSR Academy of Sciences, and the academies of sciences of the union republics. A new, more flexible scheme of their position pay scales is being introduced. Five positions of scientific workers are being established as follows: chief scientific staff member (doctor of sciences), leading scientific staff member (doctor or candidate of sciences), senior scientific staff member, scientific staff member, and junior scientific staff member.

Instead of the previous firm rates, which depended upon the length of service and the possession of an academic degree, position pay scales are established with a considerable "bracket." The latter varies from 50 to 130 rubles according to the position involved. Such a system allows us to rate the specific work of each specialist, depending on results, and to stimulate his contribution to the acceleration of scientific and technical progress.

New position pay scales are also being set up for designers and technologists; their maximum amounts can be increased by 20 percent on an average. This enables us to single out, in the first place, talented, energetic workers, those who are doing more than others to create new equipment. Here, by the way, we have been helped, to a large extent, by the Leningrad experiment on improving the organization and wages of engineering-technical workers; during the time when it was being conducted there was a significant increase in labor productivity and, in somewhat lesser amounts, wages as well; the creative principle was strengthened, and, in contrast, the demands on those who were negligent became stricter.

Thus, the decree sets forth the task of providing a closer link between the wages of scientific workers, designers, and technologists and the results of their work with regard to accelerating scientific and technical progress. For this purpose the managers of enterprises, organizations, scientific research institutes, and academies of sciences are permitted to establish bonuses for scientific workers, designers, and technologists for carrying out complex and responsible operations; such bonuses may range up to 50 percent of the position pay scale. For other highly skilled engineering-technical workers, specialists, and office employees they may range up to 30 percent of the pay scale. Such bonuses are set up for the planned time period during which particularly complex operations are to be completed.

[Question] What is the source of funds for raising the pay scales and establishing bonuses?

[Answer] The new conditions for wages are being introduced by means of and within the limits of the planned wage funds of the appropriate institutions and organizations, whereas in production and scientific-production associations and at industrial enterprises--within the limits of the planned wage funds of supervisory personnel, engineering-technical workers, and office employees. That is, no provisions have been made to make any sorts of additional allocations of money for this purpose; within the groups themselves internal sources of fund must be found, to be formed by cutting down on the number of workers and, based on this, economizing on the wage fund.

In order to carry this out, the ministries and departments, Councils of Ministers of the union republics, USSR Academy of Sciences, as well as the managers of enterprises and institutions have been assigned the following tasks:

improve the planning of the wage fund and establish norms for its formation, as a rule, for a five-year period, proceeding from the intended volumes of operations;

carry out measures directed at improving the organization and increasing the effectiveness of work, improve the administrative structure;

as the necessary conditions are created and resources accumulated, set up specific deadlines, as well as a procedure and a sequence for introducing the new position pay scales upon agreement with the appropriate trade-union organs.

[Question] But just how are the effectiveness and quality of the work done by the scientists, engineers, and other specialists to be determined?

[Answer] There is a fine method for evaluating their work: certification. The decree increases the importance of certification as a means of upgrading the responsibility of specialists. It is recognized as feasible to conduct this at least once every five years, thereby, to evaluate the work effectiveness and quality, the workers' individual contribution to the development of science and technology, the complexity and timeliness of carrying out research and development. And, likewise in accordance with the results of certification, the position pay scales will be changed--raised or lowered. For high work results they can be raised without observing the average amounts of the pay scales for the organization as a whole, as is done now. An additional incentive is the fact that the pay scale for a high-class worker can be raised without waiting for certification.

[Question] How is raising the role of certification connected with the Law on Labor Groups?

[Answer] Directly. The certification commission is made up of representatives of the administration, the partkom and trade-union committee, the supervisors of sub-divisions, and specialists. Its broad-based composition guarantees democratism, public knowledge of the ratings, and also guarantees an objectivity of approach. Thus, a group knows for whom and for what a pay scale has been changed; it understands why such-and-such was done precisely in a certain way rather than in some other way. And this facilitates the creation of a business-like, creative atmosphere; it hinders the manifestation of voluntarism and a subjective approach. In short, under such conditions the group acquires the possibility of participating better in administering and training people. In particular, the very fact of arranging the workers on a unique kind of "ladder of creative contribution" will be of great training importance.

[Question] Will the procedure for the competitive filling of vacancies at scientific-research institutes remain in effect?

[Answer] Yes, but only for being accepted for a position. During the remaining time the scientific workers will undergo certification.

[Question] How will a specialist's pay scale be affected by his being awarded an academic degree?

[Answer] The director of an institution has the right to shift him to a higher position or, if he is kept in his former position, to increase his pay within the "bracket" limits for this position.

In order to attract highly qualified specialists possessing academic degrees into permanent work in industry, in its design and technological organizations,

it is permitted to establish for them pay scales on the level of rates analogous to workers at scientific research institutes.

[Question/ In addition to improving wages, what further measures does this decree provide for stimulating scientific and technical progress?

[Answer/ The role of bonuses is being increased. Their amount and contributions to the material-incentive funds will be closely linked with the national-economic effect.

This decree also gives the right to academies of sciences to permit scientific research institutes, design and technological organizations to form funds for material incentives, socio-cultural measures, and housing construction.

A significant material and moral incentive is the establishment of yearly bonuses by the USSR Council of Ministers for designers, technologists, and scientific workers creating and mastering equipment which is new in principle as well as progressive technology.

[Question/ All these measures will evidently have a serious effect on the prestige of engineering work. Is that not so?

[Answer/ Undoubtedly so. The new wage conditions will encompass about 2.5 million specialists, working at the leading edge of scientific and technical progress. The decree emphasizes their high role in our society and poses the problem of making a just evaluation of their work. Another important measure of moral incentive is establishing a procedure for awarding the following new titles of honor--meritorious designer and meritorious technologist of the USSR and the union republics.

2384

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LABOR

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WAGE SYSTEM CHANGES FOR CEMENT INDUSTRY WORKERS

Leningrad TSEMENT in Russian No 7, Jul 85 pp 1-3

[Article by V. S. Karelin, candidate of economic sciences, Cement Scientific Research Institute: "Wages of Engineering and Technical Workers of Cement Industry Enterprises to be Improved"]

[Text] "...The lowering of the prestige of engineering work should not be considered normal. All is not in order here, and we must improve the role and authority of foremen, engineers, designers and technologists and raise the material and morale motivation of their labor." From the speech of General Secretary of the CPSU Central Committee M. S. Gorbachev at the April 1985 Central Committee Party Plenum.

The decisions of the 26th Congress of the CPSU stipulated the provision of a strengthening of the dependence of wages and bonuses of each worker on the individual labor contribution and on the final results of the work of the collective and also an increase in the role of economic motivation in raising labor productivity and in the improvement of the quality of production and economy of all forms of resources.

It was stressed at the All-Union Conference of National Inspectors in 1984 that the principle of socialism, "From each according to his abilities, to each according to his work", is the basic foundation of social justice, which, to be exact, our working class and our people for the first time in history converted from a dream to living reality. Therefore, the trend toward egalitarianism is a trend toward doing a great favor to the idler and bad worker and simultaneously harming and hurting the good, conscientious worker. We must always and everywhere assure tangible advantages to the one who works at full efficiency both in earnings and in the allocation of living accommodations, places in tourist groups and other social goods.

Unfortunately, the trend toward egalitarianism is observed in the establishment of wage rates and in the distribution of bonuses to the leaders, engineering

and technical personnel and office workers of our sector.

The following wage fund structure was set up in recent years in the cement industry: more than 91 percent was a wage fund, about 8 percent was a material incentive fund and less than 1 percent was a special purpose bonus fund.

The wages of workers of our sector are continuously increasing, and at the present time they are above the average wage of workers in all industries of the USSR. The rise in wages in the sector comprised 36.1 percent in 1983 compared to 1970, including those of labor, 39 percent.

It is apparent from the data of Table 1 that since 1970, the average wages of industrial and production personnel rose basically because of the increase in the wages of labor.

Stabilization of the wages of engineering and technical personnel and office workers is due to the constancy of their functional salary scales and a considerable lowering of the level of awarding of bonuses as the result of a reduction in the material incentive fund during reduced rates of growth of production volumes and of labor productivity. From 1980 to 1982, by virtue of a period of development unfavorable for the sector, the level of wages of engineering and technical personnel and office workers even went down somewhat.

The material incentive fund is the basic and practically sole source of the awarding of bonuses to engineering and technical personnel and office workers. The absolute amount of this fund for the period 1971-1983 per worker grew by 27 percent, but relative to the total wage fund, the incentive fund fell from 9.2 to 7.8 percent, i. e., its fraction of earnings decreased. In addition, essential changes took place in the structure of the material incentive fund itself. Compensation for total results of work according to totals for the year recently became the basic direction of the use of this fund; because a number of enterprises worked unstably, the engineering and technical personnel and office workers did not receive quarterly bonuses. Basically for this reason, the fraction of means for the current awarding of worker bonuses for the period being analyzed fell from 43.4 percent to 33.5 percent of the total amount of bonuses.

In the cement industry, the wages of engineering and technical personnel and office workers depend on the wage of a group of enterprises and the basic criterion for taking away one or another group is the volume of production turned out.

An indicator of the production volume in natural units is easy to understand; a direct relationship is evident between the volume of work and the total remuneration, but it does not reflect the quality of work of engineering and technical personnel and office workers, and also their contribution to an increase in production efficiency, which is characterized most accurately, in particular, by an indicator of the production output calculated per worker.

Table 1

ТАБЛИЦА 1

(1) Показатель	Рост среднемесячной заработной платы работников цементной промышленности (%) по годам						
	(2)	1970	1975	1980	1981	1982	1983
(3) Зароботная плата про- мышленно-производ- ственного персонала		100	117,2	126,9	129,6	131,7	135,1
(4) В том числе:							
(5) рабочих		100	118,4	129,8	133,3	134,7	138,0
(6) ИТР и служащих		100	111,2	106,1	107,6	108,2	111,7

Key:

1. Indicator
2. Rise in the average monthly wage of cement industry workers (percent)
3. Wage of industrial-production personnel
4. Including:
5. Labor
6. Engineering and technical personnel and office workers

For example, at the Sebyrakovo, Belgorod, Karachayev-Cherkessk, Ulyanovsk and Chimkent cement plants, the labor expenditures for production of binder is almost two times less than in the Bryansktsement, Karandarsk and Razdansk cement plant production associations, which have analogous equipment. However, all these plants belong to the same group for the wages of leaders and engineering and technical personnel.

Production with the least expenditures for labor requires considerable strengthening of the leader and engineering and technical personnel composition for introduction of new techniques, improvement in technology and organization of production. Therefore, such work must be encouraged.

In this connection, in indicators for classifying enterprises in one or another group with respect to wages of engineering and technical personnel and office workers for a number of the construction material industries (production of brick, glass, precast reinforced concrete, nonmetallic materials, pliable roofing and waterproofing materials, enterprises for recovery of mica and construction ceramics), it is specified that the USSR ministries and departments and the councils of ministers of the USSR republics can classify enterprises one group higher in comparison with the group to be determined by the volume of production with respect to the wages of leaders and engineering and technical personnel, if they have reached a definite production output per worker established by the plan tasks.

It is apparent that motivation of the activity of engineering and technical personnel and white collar workers needs to be extended also to the cement industry enterprises. In addition, the salaries of leaders and of engineering and technical personnel of enterprises of one group should result also in an increase of 10-15 percent--up to the level of the salaries of line workers of production associations (combines) which have in their composition two to three category I and II production units, if at the enterprise the highest production output per worker has been achieved.

For example, for cement industry enterprises, production outputs presented in Table 2 could be proposed.

As the basis for this, it should be noted that up to now not a single cement industry enterprise has an output of 3000 tons of cement per worker.

In order to raise the responsibility for an increase in labor productivity, the practice of a number of branches (coal, nonferrous metallurgy, the lumber industry) should be extended more widely, where the enterprise can be classified in the group below, if the labor productivity is below that specified in the plan year of the five-year plan.

The enterprises of our cement industry have the highest level of concentration of production in the world. Almost 80 percent of them in wages are concentrated in one group (with an output of 1 million tons or more of cement), and consequently, an operating system of distribution of enterprises according to groups does not spur leaders and engineering and technical personnel toward further growth of production and toward a rise in its efficiency, inasmuch as it is not accompanied by a corresponding increase in salaries and bonuses. Therefore, it is necessary to establish a system such that the leaders of an enterprise of any capacity would have a challenge for further growth in production volumes and for a rise in labor productivity and a corresponding increase in wages.

It is possible that the rights of production associations of the same capacity should be extended to leaders, engineering and technical personnel and office workers of the largest scale enterprises (the Balakleya combine and the Staryy Oskol, Kaments-Podolskiy, Sebyrakov and other plants) which have a cement production volume three times that of the outstanding present-day level of group 1 enterprises, with salary increases of 10-15 percent in comparison with salaries established for group 1 enterprises. The achievement of a plan output of cement per worker of more than 2,000 tons could be the basic condition for giving such rights.

The wage rate of engineering and technical personnel of shops (sections) of cement enterprises also depends on the production volume of semimanufactures and finished output. But at the same time, no indicators of labor productivity and quality of production are considered.

Shops (sectors) are divided into three (and in a number of productions, into two) groups according to wage rates. This is clearly insufficient, because engineering and technical personnel of large-scale shops (sections) are not

set up to be interested in a further rise in production. Therefore, it should be optional to introduce at least two more groups. For example, shops for calcining the clinker now belong to one group with an annual volume of clinker output of more than 475,000 tons. Meanwhile, the production capacity of several of the highest capacity calcining shops now exceeds 2,000,000-2,200,000 tons per year (with four manufacturing lines with furnaces 5 x 185 m in size for the wet method of production or with two manufacturing lines with dry method furnaces 95 m long). Starting from this, and also if concentration production processes which have come into the cement industry are taken into account, a system could be proposed for classifying shops according to the groups presented in Table 3.

In order to motivate the achievement of the project labor-intensiveness of clinker (cement) production, it would be necessary to establish that enterprises could classify shops according to the wages of engineering and technical personnel in one group which is higher in comparison with a group determined by indicators of production volume, under conditions of achievement by them of a project technological labor-intensiveness of production per ton of clinker (cement). At the same time, the project annual output of cement per worker, and also the output planned for the corresponding year of the five-year plan, must be achieved firmly altogether for the enterprise.

Two variations in the establishment of supplementary payments for engineering and technical personnel of shops are provided by prevailing legislation.

First, they, like other workers, can receive supplementary payments for combining several duties. Secondly, when one takes into consideration that the success of work on increasing labor productivity and releasing personnel depends to a high degree on the chiefs of the shops, foremen and other engineering and technical personnel, leaders of enterprises are allowed to establish continuous supplementary payments to them for development and implementation of measures providing an increase in labor productivity in comparison with that planned because of a decrease in the labor force.

Supplementary payments to engineering and technical personnel and most of all to foremen, and also office workers, are made because of a high classification in an amount up to 30 percent, and for designers and process engineers, up to 50 percent over salary (within the limits up to one percent of the wage fund of the production society or enterprise). With a decline in work indicators, these additional raises are cancelled.

It is possible to raise the amounts of the bonuses up to 25 percent for foremen, senior foremen, shift and section leaders, and engineering and technical personnel of the productions and shops, in which standards of output (service times) not less than for 80 percent of the workers, and also standard and plan tasks calculated on the basis of intersector, sector and other progressive standards for work are used. Specific amounts of bonus increases are established depending on how many workers work according to the indicated standards (tasks). An increase in bonuses up to the maximum amounts can be implemented in the cases in which the indicated standards (tasks) are used for all workers of the

Table 2

ТАБЛИЦА 2

(1) Группа предприятия по оплате труда	(2) Среднегодовая выработка цемента на одного работающего, т
I	2001—3000
II	1501—2000
III	1201—1500
IV	1001—1200
V	800—1000

Key:

1. Enterprise group according to pay
2. Average annual output of cement per worker, tons

Table 3

ТАБЛИЦА 3

Передель производства (1)	Группа по оплате труда (2)	Объем производства, тыс. т/год (3)
(4) Цех обжига клинкера	I II III IV V	(5) Более 2000 1001—2000 476—1000 276—475 (6) До 275
(7) Цех помола цемента	I II III IV V	(8) Более 2400 1200—2400 575—1200 325—575 (9) До 325

Key:

1. Production capacity
2. Group according to wage
3. Production volume, thousands of tons per year
4. Clinker calcining shop
5. More than 2000
6. Up to 275
7. Cement grinding shop
8. More than 2400
9. Up to 325

corresponding shift, section, production or shop.

For the purpose of accelerating scientific and technical progress, it is necessary to increase the motivation of the work of the engineers and leaders of enterprises responsible for carrying out especially complex technological processes, for example, the management of processes in rotary furnaces.

A raise in the pay of engineering and technical personnel must be conditioned upon an increase in the role, responsibility and intensity of their work, an expansion of functions and an improvement in the quality of work. For this, it is necessary everywhere to introduce scientifically-based standards of the number of engineers and office workers, which are developed taking into account that a raise in their wage rates must take place simultaneously with a rise in labor efficiency.

It should be noted that the quality of present-day standards of the number of engineering and technical personnel and office workers is low, because these standards are based not on the fulfillment of definite functions necessary for management of the enterprise (shop) but retain the average position set at the enterprises of the branch.

Thus, for example, in the conversion of the Sebyakovo cement plant to the VAZ [expansion unknown] system, it was explained that the Organization of Labor and Wages Department in view of its small number in practice cannot issue standard tasks to the brigades, plan and take labor intensity into account; that the Planning Economic Department composed of three people is not powerful enough to provide the issuing of self-financed tasks to the brigades, because it handles with difficulty the achievement of self-financing of the basic shops; that the Chief Mechanics Department, which comprises four people, cannot achieve the analysis of the state of equipment (engineering diagnostics) and on its basis give out tasks to maintenance shops and services.

It is possible to conclude from this, that as the result of annual reduction in the average technical and administrative personnel which is not supported by any calculations, definite functions for the management of production are completely unfulfilled even at enterprises which are working well.

This position is fixed by standards and has become mandatory for all branch enterprises. Therefore, the standards for the number of engineering and technical workers and office workers must be based on the necessity for fulfilling definite functions according to the management of production. With a decrease of these functions, however, it is necessary to reduce the number of engineering and technical personnel and office workers by a definite value. The workers of subdivisions who do not fulfill definite management functions assigned to them must be penalized not only by a reduction or forfeit of bonuses, but also by a decrease in wages.

Wage leveling, unfortunately, has also infiltrated the system for paying bonuses. For example, all personnel of the enterprise and association management staff are encouraged, as a rule, according to fund-forming indicators which are the same for all and which simultaneously are also the basic indicators and conditions

for the awarding of bonuses. But the bonuses for workers of functional subdivisions must be determined by three factors: the total results of the work of the enterprise (for provision of the total incentive), the final totals of the activity of the given subdivision (group incentive) and, finally, the personal contribution of the worker. Thus, each person must be directly and materially interested in the total, group and individual results of work.

For many subdivisions, enterprises can be not self-supporting by total indicators, but those final indicators which reflect the results of their activity: tasks for introduction of new techniques, the percentage of manual labor (or the level of mechanization of labor), labor force turnover, fulfillment of the plan for capital construction by the economic method (production and nonproduction), the regularity of work, the coefficient of the use of the calendar fund of time, and hourly productivity of equipment, above-standard reserves commodity values, the ratio of technically based standards, the quality of production, economy of fuel, electrical energy and other material resources, etc.

In a Standard Regulation as supplementary indicators and conditions of awarding bonuses of leader workers of a production association (combine) and of an enterprise, and also workers of the production management staff, fulfillment is determined by the following requirements:

- provision of regularity of production;
- introduction into operation and production of new production capacities in set periods of time;
- economy of fuel, electrical energy and other material resources, a reduction of unrealized expenditures and losses, etc.

It seems to us, that for a number of leader workers, for example, the deputy director for capital construction and workers of functional subsections, these indicators must be basic under conditions of the awarding of bonuses and not supplementary, as is the case at the present time. It is necessary in order for all indicators taken into account and planned for the enterprise to find specific and responsible performers.

Especially as in the branch Standard Regulation (paragraph 3.3) it is noted that the bonuses of workers of the enterprise management staff are awarded as the result of its work altogether based on the total activity of the structural subdivision of the management staff and the individual work indicators, and of the workers of the shops, sections and other structural subdivisions, as the results of the work of these subdivisions.

Thus, fulfillment of the basic indicator of the activity is a mandatory condition of the awarding of bonuses of leaders of functional subdivisions, and supplementary indicators and conditions of the awarding of bonuses, the nonfulfillment of which serves as a basis for decreasing bonuses, but not more than by 50 percent, must be the primary indicators to be planned for the functional subdivision.

In conformance with the Standard Regulation within the structural subdivision (plant, section, department, etc.) bonuses for workers for fulfillment of indicators are established by a single measurement (in percentages of their salaries).

This is the present wage leveling factor! Bonuses for workers most of all must take the quality of their work into account. The defect-free work system (SBT), which has been introduced into many cement industry enterprises allows this to be done to a definite degree.

Although in the Standard Regulations on the awarding of bonuses it is recommended to establish not more than two or three basic and supplemental indicators and conditions for the awarding of bonuses; however, for leaders of association and enterprise workers, not less than ten affect them.

Thus, association and enterprise leaders of workers forfeit bonuses completely for nonfulfillment of the production output plan, which has important national economic importance. The following belong to such a production in the cement industry: calibrated cement, Brand 600 portland cement and grouting portland cement. Bonuses are reduced completely or partially when expenditures for fuel, electrical and thermal energy exceed the standard, when tasks, delivery commitments and product lists are not fulfilled, etc. The regularity of work, the fulfillment of tasks specified by construction plans, assimilation and introduction of new techniques, fulfillment of the capital construction plans by an economical method, etc. are classified as supplementary indicators. Consequently, all these indicators and conditions became indicators and conditions of the majority of subsection services.

All the indicators and conditions for awarding of bonuses enumerated undoubtedly are important, but it is practically impossible to obtain a bonus in the presence of such a system of indicators. Therefore, the obtaining of bonuses by leader workers of enterprises to a greater degree began to depend on the subjective opinion of the leaders of a higher organization.

It is believed that here, also, it is necessary to indicate a more exact number of addresses of separate indicators, for fulfillment of which specific persons among the leading workers and specialists must be responsible.

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LABOR

BRIGADE METHODS IN MACHINE BUILDING ENTERPRISES CRITIQUED

Moscow IZVESTIYA in Russian 17 Sep 85 p 2

[Article by Yu. Khrenov, IZVESTIYA special correspondent: "A Ministry and Brigades"; subtitled "Why, in the Enterprises of the Ministry of Machine Building for Light and Food Industries and Household Appliances, Profit and Loss Accounting and Brigade Contracting Are Taking Root Poorly"]

[Text] The advantages of the brigade form of labor organization are indisputable today. Brigades have become a permanent part of the economic life of the country. Where there are brigades, the work goes faster. Where there are brigades, discipline is better, organization is higher and the procedure is more reliable.

It is calculated that the creation of profit and loss accounting brigades raises labor productivity an average of 15 percent and provides a significant savings in material resources. And, what's important, this is all accomplished without additional capital expenditures.

Brigades are active today in all branches of the national economy. Their contribution to raising its efficiency is constantly rising. And all the same, the development of the brigade movement still has its complications. What kind? That's what the discussion was about at a joint session of plan-budgeting commissions and the industrialization commissions of the Soviet Union and of the Soviet of Nationalities. The commissions examined the question of the work of the Machine Building Ministry for Light and Food Industries and Household Appliances in raising labor productivity by introducing collective forms of organization and incentives in light of the demands of the CPSU Central Committee.

The commissions worked as they always do: first they studied the question fundamentally, only then discussed it. In the course of preparing for discussion, the deputies familiarized themselves with the state of affairs at more than a fourth of all the enterprises of the branch, as well as with the work of the collegia and apparatuses of the ministry, and analyzed the materials provided by the ministries, departments and the All-Union Central Trade Union Council. This arrangement permitted them to see all sides of the question, with all its pluses and minuses. And therefore, when the first delegate of the ministry, A. Donskikh, speaking on behalf of the

leadership of the branch at the session with a report, tried to portray the situation, let's say, in a somewhat more rosy light, realistic hues were right then restored to the picture and the departmental "color blindness" received a corresponding evaluation. Successes? Yes, they, of course, do exist. But as yet they are still very modest ones.

If we compare the introduction of brigade forms of organization and stimulation of labor in the Ministry of Light and Food Industries and Household Appliances with that in other machine building ministries, the balance ends up not the Ministry of Machine Construction for Light and Food Industry and Household Appliances' favor. The branch is noticeably behind in the introduction of worker brigades and year after year fails to fulfill assignments in the growth of this indicator.

Qualitatively as well, the brigades in the Ministry of Machine Building for Light and Food Industry and Household Appliances are weaker. Too few brigades of the new type have been created--reinforced, integrated and comprehensive, with labor being remunerated on a single unified scale based on the final results, applying a labor participation coefficient.

The most efficient brigades, the profit-and-loss accounting ones, exist at less than half the enterprises. At the start of the current year, only 13.5 percent of the workers were in such brigades, which is almost less than half the average level for the machine building industry. Even at that, only 1 percent of those in brigades worked on brigade contract.

And that's not all the bad news. It so happens that brigades are created, but exist more in reports and certificates than in real life and the benefit from such brigades, understandably, is not great. That's the thing, "benefit": as we already said, whereas the transition to brigade forms of labor organization usually raises productivity by 15 percent, in the Ministry of Machine Building for Light and Food Industry and Household Appliances over the last 3 years the effect of this has been 3.7 percent.

Why is this so?

Analyzing the reasons for this, the leader of the joint delegate preparatory commission, V. Mikhailov, (he spoke at the session as the co-author of a report) noted:

--Brigades are taking root well and are working efficiently where the production pace has been worked out and a distinct procedure has been established, but, as we found, at the enterprises of the Ministry of Machine Building for Light and Food Industries and Household Appliances there is not enough of this....

Yes, there isn't enough procedure and developed working pace. That affects and hampers the introduction of collective forms of organization and labor stimulation. How, for example, can they become firmly established at the Torgmash plant in Leninakan, wondered delegate M. Artyunyan. That enterprise has been in existence more than 20 years, and the ministry still hasn't

solved the question of its specialization. Twice at the plant retooling was attempted. But not once did they carry it through to completion. As a result, it still produces compressors whose design was obsolete 2 decades ago. Not a single year passes without the designation of a new production wing of 2,000 square meters of floorspace. In 1984, compared with 1981, labor productivity dropped by 40 percent. It is understandable how this affects morale. What sort of brigades are there here...!

Brigades, especially profit-and-loss accounting ones, do not take root where work is poorly organized; for them the jumps from inactivity to crash work are fatal, as is unreliability in material-technical support. But that's what investigations of the state of affairs at the enterprises of the Ministry of Machine Building for Light and Food Industries and Household Appliances showed. In the first 10 days of the month, usually only up to 17 percent of goods is produced, in the second--27 percent, but in the third--over 55 percent. That means, noted delegate L. Krivoruchko, that the first 10 days the workers "underwork" half the shift, in the second 10 days--a fourth of the shift, then in the last 10 days they must make up for what's been missed. Let's say, continued the deputy, that under these conditions profit-and-loss accounting brigades are created. According to what's been said about them, in cases of failure to fulfill the plan due to the fault of management, they impose "sanctions," that is, production leaders who have poorly organized the work will be deprived of the bonuses they now receive. Thus, all the engineering-technical workers of the branch could be left without bonuses! Would they care? Right there, L. Krivoruchko stressed, doubtlessly, is another obstacle to the forward progress of brigades. Workers are overwhelmingly for brigades, as this form of labor organization is objectively profitable to them. However, the management of many enterprises and engineering-technical personnel are rather afraid of them. How can this conflict be resolved? The time has come to seriously ponder this.

The ministry is the headquarters of the branch. Brigades are its primary production cells. In the fate of brigades, much depends on how the headquarters manages. IZVESTIYA recently wrote (No 242) about the "paper style" of the leadership in the Ministry of Machine Building for Light and Food Industries and Household Appliances. It also lets it be known about what it thinks about the introduction of brigade forms of organizing and stimulating labor. The ministry sends many papers down about creating brigades and their work, said delegate T. Burtseva, while it conducts practically no actual organizational work. Yes, and the contents of many papers leave something to be desired. They are often verbose and vague and sometimes lead to confusion rather than clarification. Thus, the USSR State Labor Committee and the All-Union Central Trade Union Council Secretariat adopted recommendations for the introduction of brigade profit-and-loss accounting in industry. These specify, in particular, that only brigades where, by procedure, workers have to meet the expenditure norms for raw materials, semi-finished goods, energy and other resources and where material stimulation for the conservation of these is organized, can be considered on a profit-and-loss basis. But it is here, in the branch attitude toward production brigades projected by the Ministry of Machinery Building for Light and Food Industries and Household Appliances to its enterprises, that the most important

feature is practically skipped. In this case, the essence of profit-and-loss accounting is essentially lost in the shuffle.

The development of brigade forms of labor organization and stimulation could be aided by study and rationalization of worker places. Nonetheless, this work is not done well in the branch. At the start of this year, more than a third of the associations and enterprises had not done this. Often, noted delegates, it is just a formality, and the reserves found are not always used.

The delegates indicated to the heads of the ministry that the branch is not paying enough attention to the integrated retooling and reconstruction of enterprises. The stock of physically worn-out and technologically outmoded equipment is not being reduced; rather it continues to grow, which, understandably, also affects the work pace.

Notice was taken of insufficient attention being paid to the building and rebuilding of auxiliary production. At the enterprises of Vinnitsk oblast, in the present five-year plan fixed capital was increased one and a half times, while the volume of production grew by 15 percent. This occurred because the renovation did not include the auxiliary shops and sections; they remained as they were, underpowered and with the majority in makeshift accommodations.

Under conditions when things are not going very well, it would seem, advanced experience must be particularly valuable. But with the spread of experience it must be admitted that in the branch bitter conflicts arise. Delegate A. Zakharenko, at the commission's behest, studied the state of affairs at a number of enterprises. Among these was the Cherkassk plant imeni Petrovskiy. This plant is a testing ground in the branch for developing the most efficient forms of labor organization and stimulation. Where else to find exemplary brigades if not here? Alas, here is a collection of "exemplaries" of a special kind. Brigades, it's true, they are. They even count as contract ones. But the contract agreements under which they operate include neither the production specifications, nor its capacity, nor limits on the manpower, nor its wage fund, nor its equipment or management conditions. Conservation assignments are not given to the workers. Yet here's where brigade members and specialists from other enterprises are supposed to come to be trained! It's a good thing, said the delegate, that they don't come since they won't learn anything....

At the close of the session, A. Donskikh spoke again. He fully admitted the justice of the sharp criticism aimed at the branch's management and assured the delegates that the recommendations of the commissions the ministry would be implemented without delay.

The sense of the recommendations is clear. Responsibility and discipline must be raised in the apparatus of the ministry, in the associations and in the enterprises. The management's "paper style" must be eliminated. Only thus will it be possible to turn around the work of developing and raising the efficiency of collective forms of organization and labor stimulation.

EDUCATION

UZBEK EDUCATION MINISTER SUGGESTS MORE EFFECTIVE METHODOLOGY

Moscow UCHITELSKAYA GAZETA in Russian 10 Aug 85 p 2

[Article by A. Abbasova, UzSSR minister of education: "Under Conditions of Scientific and Technical Progress"]

[Text] The present generation of pupils faces the prospect of working with an essentially new technology. After the June meeting of the CPSU Central Committee, the Ministry of Education of the republic developed a complex plan of measures. The plan envisions a strengthening of the polytechnical trend in the educational process, the wide use of computer technology and the introduction, in September 1985, of a new subject in the ninth grade, "Fundamentals of Informatics and Computer Technology."

Of course we have, as in other republics, certain obstacles; the shortage of qualified personnel and the weakness in the material base have an effect. Furthermore, the procedure for the use of computer technology in the lessons of various subjects is poorly worked out. To solve these problems, we held a lecture course this spring for school directors and their assistants on the fundamentals of informatics and computer technology; the course was conducted in the departments for improving professional skills at the Tashkent, Fergana, Bukhara and Samarkand pedagogical institutes. In July, additional training was initiated for mathematics and physics teachers in secondary schools, vocational-technical schools and secondary specialized educational institutions.

I would also like to say that new specialties are being introduced in our pedagogical VUZ's: mathematics and informatics instructor and instructor of physics and informatics. Moreover, special courses in all departments will provide an opportunity for future teachers in every field to obtain some knowledge in this most important trend in scientific and technical progress, as well as to learn how to interface with the computer and to use microcomputers in lessons.

The government of the republic pledged enterprises, departments and institutions which have computer centers to allot the necessary computer time to instruct school children. Our ministry will establish jointly with the Cybernetics Scientific and Industrial Association, a center to prepare school children for work with the latest computer technology.

Educational films and television can be an enormous help to us. In September, Uzbek television will organize broadcasts on informatics and computer technology. The question of the creation of a television computer center is being studied: the center would present problems in algorithms and programming to teachers and students and would then check the solutions sent in and comment on the results on the screen.

This raises the problem of organizing the mass production of educational films on informatics, which is especially important under conditions where there is a shortage of the necessary quantity of microprocessor technology. There is no doubt that studies in the new discipline would be more effective if they were accompanied by demonstration experiment and laboratory practice. But unfortunately, at the present, industry has not turned out the equipment needed for schools. We will try to replace it for now, at least in some measure, with movies and videotapes.

Without a doubt, we must implement, in the shortest time, the requirements of the reform concerning the introduction of the course, "Informatics and Computer Technology." But here, it seems to me that pedagogy must not go to the extremes that are perceptible in a number of publications. I have in mind the elements of technocracy.

Indeed, we often talk about the different types of computers we should give to the schools and about the link with computer centers and with the foremost enterprises. All this is justified. However, we mustn't forget that the provision of computer literacy should be subordinate to the main highly human problem, the education of a well-rounded person. And in this plan, I would consider it proper to speak not only about computer literacy, but also about computer culture, for as V.I. Lenin pointed out repeatedly, a distinction exists between literacy and culture.

In recent years, the familiarity of students in the republic with the achievements of scientific and technical progress has improved somewhat. Such work is being conducted in classes, elective courses and technical creativity clubs, as well as in the process of labor training and vocational guidance, industrial practice and the organization of excursions to enterprises.

The consideration for the development of technical creativity in children by the organs of public education has grown appreciably. We now have more than 17,500 technical creativity clubs which involve 400,000 pupils in grades 4-10. However, one can't say that they all work effectively. Fundamental improvement is needed here. The ministry is now developing a special plan of measures. The creation of clubs for young innovators and inventors and of scientific societies for young people working on assignments from industrial enterprises and research institutes is planned in schools and extracurricular institutions. They will be continually assisted by branches of the Scientific and Technical Society and the Society of Innovators and Inventors of Uzbekistan.

We are giving a special place to the improvement of centers [stantsiya] for young technicians. There are 98 of them in the republic. Happily, there has been a quick growth already in clubs connected with the latest technology: space

models, electronics, telemechanics, informatics, etc., along with the traditional airplane and ship model building, photography and radio clubs.

It is gratifying that the work of the clubs is more and more connected with the needs of the national economy. For example, young engineers fulfill the orders from the physico-technical institute of the UzSSR Academy of Sciences, the cybernetics institute and the Tashkent University imeni V.I. Lenin.

There is, however, a number of problems which have not been properly solved at this time. In the first place, only 1.6 percent of the pupils in the republic are involved with these clubs. In individual oblasts, the number is less than one-half percent.

In March 1984, small-scale science academies were established by a joint decision the Secretariat of the Komsomol Central Committee and the Presidium of our Science Academies, with the collegiums of the Minpros [Ministry of Education], Minvuz [Ministry of Higher and Secondary Specialized Education] and Gosprofobr [State Committee for Vocational and Technical Education]. They combine senior pupils who show an interest in scientific and technical work. The objectives of these academies are to organize the scientific work of young people, to render all possible assistance to gifted boys and girls in the growth of their knowledge and to develop creative and social activity.

The members of these academies are the winners of the republic's Olympiads in mathematics, physics, chemistry and biology. The leading scientists of the republic lecture to them. The students visit the laboratories of scientific research institutes and VUZ's where they carry out practical work. There are now more than 200 young "academics" from all oblasts of the republic. We value highly the activity of our small-scale academies and we see that their work promotes an increased interest in scientific and technology among young people and contributes to the exposure of new talents. This, in our view, is especially important in terms of the intensification of scientific and technical progress.

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1828/205

EDUCATION

JOB TRAINING IN IRKUTSK FOR FUTURE BANK PERSONNEL

Moscow DENG I KREDIT in Russian No 8, Aug 85 pp 60-62

[Article by N. A. Kutyavina, L. M. Tolpygina and V. M. Shafirova, candidates of economic sciences: "The Trainee Program as an Important Stage in Training the Gosbank Specialist"]

[Text] The department of "Circulation of Money and Credit" at the Irkutsk Institute of the National Economy trains economists for the system of Gosbank and Stroybank and organizes internship of the department's graduates according to a program approved by the Gosbank board.

The graduates go to work in Gosbank at the beginning of August. The person responsible for the internship program sees that they arrive in time where they have been sent.

The personnel of the department maintains constant communication with the institute's graduates and with the supervisors of the internship program. Yet it is not possible to take direct part in summing up the results of the trainee program for all graduates, since the time the results are totaled does not coincide with the period covered by the trainee program. But later the department's faculty, in checking the facilities used for the internship program, see how it has been organized and conducted and what the internship of young specialists consists of. They make a written report on the results of the examination. Every January the graduate is sent a questionnaire which he is supposed to fill out as fully as possible. Experience has shown that the feedback from a large-scale survey is not always what it should be, since barely 50 percent of the questionnaires are filled out and returned to the institute. Nevertheless, a study of the answers given by the graduates and supervisors of the trainee program does allow us to critically evaluate the quality of the specialists' training.

In our view the most important of the questions are those which have to do with the things which make occupational adaptation difficult and also those concerning recommendations on organizing the internship and improving the teaching process.

An analysis of the responses of graduates over the last 3 years shows that the graduates do not express objections to the way the internship itself is organized.

We also assume that in the Gosbank system the trainee program is organized as a rule up to the required standard and is conducted according to an individual plan. Highly qualified Gosbank specialists are assigned to be the immediate supervisors. The individual plans make provision for thorough study and practical performance of specific duties in the job position held, a deepening of knowledge concerning the economy of the rayon and the enterprises served, development of the ability to handle matters related to serving the clients assigned with respect to credit and settlement. At the end of the internship, the results are totaled up. They are discussed in a session of the department. At that time attention is paid above all to those shortcomings in the training of specialists which are mentioned most frequently in the survey. At the same time steps are taken to improve the quality of the training of specialists.

But unfortunately everything does not depend on the department. We are naturally disturbed by the fact that for one reason or another the institute does not get back all the questionnaires, although a definite effort is made to explain its purpose to the institute's graduates. During discussion of the results of the trainee program the recommendation has been made that the questionnaires be given to the graduates when they are awarded their diplomas. But in our opinion this still does not guarantee that all the questionnaires will be returned to the institute, although it could be tried. If the diplomas for graduation from the VUZ were awarded after the internship, and indeed even took its results into account, that would be a different matter. In this case there would be a guarantee that all the specialists would arrive at the place where they have been assigned on time. This would also make the internship more important in shaping the bank specialist and would improve the quality of the internship.

The responses of the graduates related to improving the educational process and the reasons that made vocational adaptation more difficult have attracted the attention of the department's personnel as well. It should be noted that by and large the graduates do not have enough practical habits or ability to deal with clients. During their 4-year course of studies they have one work program during the 4th year lasting 3.5 months. At that time the student must take two courses: "Organization and Planning of Credit" and "Organization and Planning of Circulation of Money," to write a report on his work program, to do his sociopolitical practice, and to write his diploma paper. Of course, this load does not always allow the students to fully master all the habits of a bank employee during the work program, and this in turn cannot but have an effect on vocational adaptation. But in studying and analyzing the responses of the internship supervisors we noted the fact that the adaptation of the young specialists takes place quickly and painlessly wherever the trainee program is taking place in the same place where the person is going to work later on, and this is true not only for banking specialties, but other specialties as well.

During the work program the student studies the economy of the rayon and also the work being done by all the departments in the Gosbank institution, and he gradually gets to know the collective better.

Sociopolitical practice means active participation in the activity of the Komsomol organization of the Gosbank institution and carrying out its orders, presenting lectures and talks, doing vocational guidance in the schools of the rayon, taking part in the wall newspaper and Communist Saturdays. During his practice the student must also perform a number of assignments received from other departments; unfortunately, they are sometimes given without taking into account the student's specialization.

In writing the diploma paper the student studies in more detail the economic and financial activity of individual enterprises and questions of credit, settlement and the circulation of money as they apply to those enterprises. It should also be taken into account that the psychological factor also plays a substantial role in adaptation of young specialists in this case. Examples can be given. O. V. Kaputskaya, a woman who graduated in 1983 in the specialization "Accounting in Banks," did her work program in the October branch of Stroybank in Irkutsk and was sent to work in the same branch. L. V. Tarakanova and Ye. D. Ustyugova, women specializing in short-term credit financing who graduated in 1983, did their work program in the city administration of the Irkutsk Oblast Office and were sent to work in the same institution. They

indicated on their questionnaires that there were no obstacles to adaptation to their jobs, since they were going to work in the same place where they had spent their work program. In the 1984/85 academic year young specialists were assigned to work and to work programs in December, that is, before the work program began. This will unquestionably have a favorable effect on the results of the trainee program. Of course, at present it is difficult to guarantee 100-percent correspondence between the place where the graduates do their work program and where they are sent to work, since the specialists receive their assignments in the offices of Gosbank and Stroybank, but we do note that it is now normal for more than 50 percent of the specialists to go to work in the same place where they did their work program. It seems to us that in future the practice should be continued of assigning specialists to work before the place where they will do their work program has been determined.

There are also cases in which workplace adaptation is more difficult when graduates are assigned to work immediately in the departments of oblast (kray) offices. There is no doubt that this results from an indispensable need in the work process, but work in departments of the office has its own specific characteristics which students do not have time enough to become familiar with during their work program. In addition, work in oblast (kray) offices presupposes a certain period of practical time spent working directly with clients. A lack of this soon shows up. The graduates have so indicated on their questionnaires.

The institute does not train economists for the Gostrudsbetsk system, but there are openings in savings banks, and graduates of our department are sent to savings banks. But it should be noted that there are not very many such openings. Two 1983 graduates were assigned to work in a savings bank. O. A. Serykh went to Savings Bank No 6193 in the village of Khorol in Maritime Kray. Ol'ga Aleksandrovna is now working as the chief of that savings bank. The supervisor of her internship noted in the questionnaire that this woman who

graduated from the institute had taken over a section which was in a neglected state and had been the subject of many complaints this savings bank had received from clients. In a short time O. A. Serykh was able to organize the staff and smooth out the operation and also to introduce new forms of serving the public. She also was very active in the rayon commission for advancement of state savings.

It should be noted that in this case difficulties were encountered on another level. The recent graduate does not have sufficient knowledge to perform job duties concerning the operational workings of savings banks or the ability to deal with subordinates and clients. But the knowledge acquired in the institute makes it possible for the graduates to master the job in a short time.

The performance of sociopolitical practice during the work program is an indispensable prerequisite for participation of the graduates in the civic life of the collectives. As is evident from the questionnaires, the graduates serve as group leaders concerning information on political affairs, propagandists, members of the Komsomol "Searchlight" [a watchdog group], agitators, members of the voluntary people's monitors [narodnaya druzhina], editorial boards, and so on.

In May-June of each year the department sends out questionnaires to supervisors of the internship program in the expectation that at the end the supervisors will have something to say about the quality of training of specialists from the VUZ. They are expected to answer 12 questions in all. An analysis of the responses from the supervisors of the trainee program has shown that in most cases the quality of training of specialists has not evoked substantial criticism. The remarks that are made here and there come down to saying that the graduates do not have sufficient mastery of practical skills and the related recommendation that the length of the work program be increased and the number of hours allocated to practical workshops in courses in the major field of study be increased. This question will be settled when the new syllabi are introduced, but unfortunately the length of the work program is for the present remaining the same.

In our view it would help to raise the level of the practical training of specialists if specialized (academic) branches of Gosbank were organized and affiliated with higher educational institutions; this could be based on the experience of Gosbank institutions of this kind related to secondary educational institutions, which ultimately will help to improve the training of young specialists, and then it would not be necessary to make the work program longer. In addition, the students would be able to take advantage of the opportunity to gather practical material for the course papers they do in the subject "Circulation of Money and Credit," thereby establishing a closer linkage between the topics of course papers and the diploma paper. But at present Gosbank unfortunately has no such branches. Yet it is evident from the results of the internship program that the quality of practical training of the specialists does need to be improved. That is why the department, while using traditional teaching methods, is exploring new ways of improving the training of specialists. Practical lectures are being presented in the major fields of study "Organization and Planning of Credit" and "Organization and Planning of

the Circulation of Money." The cards of a programmed survey are used to monitor on an everyday basis the mastery of the special courses in these lectures. This makes it possible to evaluate the knowledge of the students in the entire group and to discover those topics which the students have not mastered in the process of preparing for the lectures. In addition, a laboratory project is done on the topic "The Role of Credit in Organizing Working Capital": the students have to determine a number of indicators from the balance sheet of the "Angara" Footwear Association. Plans for the future call for expanding the practice of laboratory projects.

The department provides the students substantial help with respect to methods when they are writing their diploma papers. The topics of the diploma papers are decided on every year in a session of the department. Instructions concerning methods of writing them are prepared and are specific concerning the individual topics. We should note that the very existence of these instructions on methods provides substantial help to the students. For instance, during the 4-year course of study the special course "Organization and Planning of Credit" is studied in the sixth and seventh semesters. The department recommends that the topic of the diploma paper be set in the sixth semester, i.e., at the time when the students are just beginning to study the course. There is a definite point to this. The theoretical foundation for studying the course "Organization and Planning of Credit" is provided in the course "Circulation of Money and Credit in the USSR," especially since this course ends with a course paper. The chair recommends that this course paper be extended and elaborated further. In this case the instructions on methods of writing diploma papers on particular topics would orient the students in the direction of a more thorough study of the matters related to credit and the circulation of money.

Every year the chair holds a joint session with supervisors of the Irkutsk Oblast Office of Gosbank. It is attended by supervisors in the work program and supervisors of diploma papers. Here the results of the work program in the past academic year are analyzed, and tasks are defined for the future. In addition, the results of defense of diploma papers are discussed.

The department has concluded an agreement on cooperation with the Irkutsk Oblast Office of Gosbank. In performance of that agreement the students in the department every year run checks on adherence to cash discipline and the correctness of expenditure of wage funds in the city's budget-financed organizations. Checks are made in as many as 30 organizations.

Some of the better students take part in working on state budget and business contract topics.

The students in the department take an active part in the work of the student scientific society. In its meetings the students present reports, study various monographs and materials published in the pages of the journal DENG I KREDIT. To be specific, a study was made of the monograph by N. I. Valentseva and Ye. I. Minina entitled "The Role of Credit in Management of Inventories of Finished Goods and Supplies" and of articles on that subject.

Every year the students take part in the competition entitled "The Student and Scientific-Technical Progress." This year the students received an invitation from the School of Finance and Economics to take part in an inter-VUZ competition in Leningrad. In our opinion all of this helps to improve the quality of the training of specialists.

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DEMOGRAPHY

CHANGES IN AGING PATTERNS IN USSR DESCRIBED

Moscow NEDELYA in Russian No 33, 12-18 Aug 85 p 16

[Interview with A. A. Antonov, head of the sector for social problems of population health of the Institute for Sociological Research, USSR Academy of Sciences by Ye Tereshchenko, date and place not specified: "We and Our Grandfathers"]

[Text] Will the country's population grow older in the near future? Will it be younger? These questions are answered by Anatoliy Ivanovich Antonov, Doctor of Philosophical Sciences, head of the sector for Social Problems of Population Health, Institute of Sociological Research, USSR Academy of Sciences.

On the street we run into friends we have not seen for many years, and the remark is made: "Just think, your son is already grown! How time flies!" Yes, time does fly. Children grow up, grandchildren appear, we congratulate each other on these joyful occasions. But...children grow up, and parents grow old. Some earlier, others later, depending upon many factors. Specialists claim that the onset of old age can be postponed and nature of its progression modified. Be that as it may, everyone grows old. This is an objective process which--alas!--does not depend on the will of the individual person. In the last century in all countries of the world there has been a considerable change not only in size of populations but also in the age makeup of each population--there is a higher percentage of older people and a lower percentage of young age groups. And this process is accelerating. According to data presented in the book "Pozhiloy chelovek v semye i obshchestve" [The Old Person in the Family and Society] by M. Sonin and A. Dyskin, in 1970 there were on the earth about 291 million people 60 years of age and older; by the year 2000 this figure will increase to about 585 million. The growth is more than 100 percent!

All this naturally gives rise to a number of consequences that are demographic, economic, social and ethical in nature. This is why problems of population aging are so important and pressing, requiring the attention of both scientists and practical experts.

On the agenda, along with the medical and social servicing of old people and the resolution of problems relating to the housing, everyday needs and psychological aspects, there are problems of providing for their active old age, professional and social activity and participation in social labor. A study of history points out numerous examples of people who preserved into a ripe old age a lucid mind, high spirits and high order of fitness for work. Leo Tolstoy wrote "Resurrection" when he was 70; Goethe penned "Faust" at 82; Michelangelo at 90 continued to create masterpieces of art. But enough of history! Just recently on the stage of the Bolshoi Theater the role of Gremin in "Yevgeniy Onegin" was played by 90-year old Mark Osipovich Reyzen! This is not simply a gift from nature. This is an attainment of the person himself, who by his way of living, in his attitude toward health fought against aging, fought for a long and active life, for the purpose of, as phrased by gerontologists, "adding not years to life, but life to years." And he is the victor.

Some people are of the opinion that, since our living conditions are continually improving, there will be a greater number of elderly people. At times figures are cited which are hard to believe, even fantastic. I will say at the outset that at the present time a society is considered to contain a large older component if old people comprise 15-18 percent. A figure of 25-30 percent is the maximum limit which can be imagined. Just now we stand some distance away from this limit, but many countries have come very close to it. By the beginning of the 21st century a similar picture will unfold in the majority of developed countries. For this reason it is necessary to think about a problem which is quite complicated--the creation of a socio-psychological climate for people who are about to enter a fairly difficult period of their life.

Research shows that people's notions about old age are dominated by a stereotype--one of a decrepit, infirm old person incapable of doing anything. Incidentally, some young people are convinced that a person starts to feel old at an age as early as 40-50 years; they think of the age of 60 as being advanced old age. This is a mistake! Surveys have shown that as a rule people 60-70 years old do not consider themselves as such.

Nevertheless, the perception held by society of a typical example of an individual in his mature years as a helpless old person inevitably makes an impression on the mentality and vital behavior of the older generation. For this reason, it is necessary to overcome the stereotype of the old person, especially since all of us will arrive at the "autumnal" period of our lives. The social health of a society depends to a great extent on the degree of emotional comfort enjoyed by each age group.

No, old people are definitely not "material" which is used up and discarded by society. They are its social conscience, the experience and wisdom of life, the same layer which preserves within itself spiritual values. And old age is certainly not a time of infirmity, it is simply a qualitatively new period in a person's life. A survey conducted among old people made it possible to conclude that their dramatization of their situation is hardly in direct proportion to the actual circumstances of their lives; these circumstances are a highly subjective quantity in life. However, for others, adapting to the onset of old age is indeed difficult. This is the time of life, as the social psychologists say, when disintegration of the social atom begins. Old people exhibit inadequate reactions to situations relating to transportation and waiting in lines; they tend to be critical and lecture...Really, now, that should not be held against them!

Question The problem of old people is tied in with other demographic problems. What are the others?

Answer First and foremost, the problem of the family in general and number of children in the family in particular. The aging of society is a consequence of a reduction in the birth rate, of the increasing trend towards having fewer children. At the present time in the European part of the USSR the majority of families have one or two children. This means that in 30 years people who were the only child of their parents will start to retire. They will not have brothers and sisters, there will be no cousins, uncles and aunts--in a word, there will be no blood relations, no bastion against loneliness.

Even now it is possible to observe an amazing phenomenon: Some older people do not need grandchildren, preferring instead to spend their free time as they please. Not all of them, of course, but still an appreciable percentage. We recently carried out sociological research in Moscow. It included the question: In your opinion, how many children should a family have so that in old age a person will not feel lonely? Sixty-five percent of the female Muscovites answered that the number of children is not important to them in this regard. "Well, what about feeling disadvantaged in the material sense in old age?" we asked. Also unimportant! What about being respected in old age? Not important... It seems that in the mind of most modern people, a person's situation--economic, psychological and social--in old age is not associated with the number of children. However, based on experience gained in operating homes for the elderly, we know that high prestige is attached to family ties.

/Question/ What is the opinion held by sociologists and demographers regarding long life? Extending the life-span?

/Answer/ I am of the opinion that the problem of extending an individual's lifetime to, say 100 years and more, is still an abstract concept, although in the future demography will possibly define the maximum age limit which if surpassed will disturb the ratio of old people to children in the population structure. At the present time demographers and sociologists are faced with a problem which is pressing: determining the social mechanisms of the mortality of people dying at an age considered young relative to present measurement criteria.

The losses suffered by the country due to early deaths are enormous. However, the causes of this are definitely not hidden in the standard of living: In the USSR it is sufficiently high. In this case along with the usual factors another new aspect comes into play: a careless and negligent attitude toward one's health, thoughtless abuse of the body, until "lightning strikes". At the top of the list in this regard are proper working conditions (Kultura trada), whereby high standards of organization and discipline and a respectful attitude toward human dignity are assumed to prevail. Only this can exclude hurried confusion and rush work, when unfinished tasks are put off until the last minute, culminating in a stress situation, with the result that the nervous system is adversely affected and health is lost. Ischemia, infarcts, ulcers and nervous disorders are often linked with the job and become work-related "epidemics." A high-stress work schedule these days can mean only poor organization of work. No one will believe you if you say that a person suffering an infarct while at work is the victim of the production concept. No, I am convinced that he is the victim of poor working conditions, instead.

To extend human life, it is necessary to utilize to the maximum all the intrinsic and behavioral resources possessed by a person. In some manner an individual determines his life-span by his frame of mind and vital behavior. This statement is the result of scientific research. In surveys conducted among the population, it turned out that the majority consider the most important factor to be the efforts made by the person himself to promote health and extend his lifetime, and not at all the effect of environment and heredity.

/Question/ However, it seems to me that there is no person alive who would not want to live longer...

/Answer/ That is correct. But some people make an effort in this regard, while others swim with the current. Women, for example, are better at this than men: the average life-span for them is much longer than for men. And not only because this is so "determined" by nature. Data gathered by random surveys point out that women are more concerned with their health--they take better care of it. On the other hand, men are

somewhat complacent and unconcerned; it appears that they ask for much but are content with little. And this is not a case of special conditions which impede men in their realization of hopes for self-protection. Women obviously have more than their share of such impediments: let us mention how overloaded with work women are, the double employment of female workers, working at home and holding a job. The cause lies elsewhere--in the social role of men, in their tendency to overestimate their health and strengths, in other words, in behaviour which is misdirected relative to life and health.

The course of history has been such that for decades men were required to exhibit self-sacrifice at the front and perform heroic feats of labor at construction sites in response to requirements of five-year plans. Men grew up expecting to accomplish great feats. This gave rise to the formation of the corresponding concepts, the stereotypes of male behavior. To be a real man means to be strong, brave, resolute. In some persons there were superimposed onto these concepts smoking, drinking and bravery, all of which became a kind of symbol of supermanliness. Neglect of health almost became a stereotype of a "real man."

Today the psychological readiness for such behavior is devoid of an objective basis, although extreme situations will, apparently, always arise. Nevertheless, stereotypes of such careless behavior continue to exist. In contradistinction to women, some men unfortunately have no safety zone of self-realization. The social role of women includes the family and children, although for many of them this amounts to an added burden. However, I am sure that it is this motherhood aspect specifically that renders women more viable. It is time to intensify men's orientation toward the family and children. And let us remember that a person's concern for his health is not a matter for his consideration alone.

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DEMOGRAPHY

ANALYZING DEMOGRAPHIC CHANGES IN EDUCATION PLANNING

Moscow VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 6: EKONOMIKA in Russian No 4, Jul-Aug 85 pp 37-43

[Article by Yelena Mikhaylovna Bubnova, candidate of economic sciences and senior research assistant of the Moscow State University's Economics Department Chair for Non-industrial Economics: "The Calculation of Demographic Waves in Long-range Planning for Higher and Secondary Specialized Education"; manuscript received 7 Feb 84]

[Text] The higher and secondary specialized schools of our nation have entered a new stage of development--of an increased scope of training for specialists and for the complete satisfaction of the economy's numerical need for specialists on the whole. At the beginning of 1983 more than 15.6 percent of all positions in the economy were filled by specialists with a secondary specialized education and 11.6 percent by those with a higher education.¹ Therefore, since the determination of the scope of training for specialists was done earlier by eliciting existing resources and was directed at increasing the scope of their training, then, currently, the questions of primary importance are those connected with the internal balancing of the specialized education system, in particular, the maintaining of the ratio between the training of specialists and other categories of positions. In connection with this a question arises concerning the dynamics of the educational level of the working-age population and the planning, on a long-range basis, of the proportion of specialists with higher or secondary specialized education among all the positions in the economy.

The level of saturation of the economy by specialists is a most important social, demographic and economic feature. The importance of comprehensive calculation and reflection in economic plans of the most important factors in the development of society, including social and demographic ones,² was emphasized at the June (1983) Plenum of the CPSU Central Committee.

This is being given a lot of attention presently in the carrying out of planning calculations in the area of higher and secondary specialized education. In the first place, the demographic structure of the population is being taken into consideration during planning of the need for specialists according to specialties connected with services for the public. Thus, in health care the need for specialists is based on a calculation per 1000 people and in education

it is calculated on the number of school-age children.³ A question arises concerning the territorial placement of higher and secondary specialized education institutions in accordance with regional differences in the social and demographic structures.⁴ A study is being made of the need of the population to receive higher education and this need is also connected with the number of individual sex and age groups in the population.

In the dynamics of the series of the number of individual sex and age groups in the population of the USSR as a whole and of its individual regions, along with a progressive tendency, one can note fluctuations, characterized by an average period, which diminish over time. This is the basis for introducing the term "demographic waves" to designate such dynamics. In our opinion, the nature of the activities and of the social and demographic consequences of these demographic waves have not been studied sufficiently. Meanwhile, their significance goes far beyond the framework of pure demography and exerts influence on many social and economic processes.

In the present article the influence of demographic waves on the educational level of the population and on the dynamics and structure of training for specialists in several specialties and educational modes is examined.

Demographic waves arise as a result of sharp changes in the levels of the birth and mortality rates, which are caused by wars. Anomalies in the age structure of the population in the course of time lead to repetition of the fluctuations in the number of individual sex and age groups. Demographic waves are generated and the intensity of their ebbing is, at times, connected with the reproductive behavior of the population. The alternation of the local extremes of such a wave is notable to an extreme degree in the extent of three generations, and the distances between adjoining maximums or minimums correspond to the reproductive period of a demographic generation and, in actual time, amount to 25-30 years.

The undulatory dynamics are also acquired correspondingly by such social and demographic features as the number of secondary school and PTU graduates, the number of pre-school children, the size of the pensioner and pre-pensioner populations and, finally, the size of the entire working-age population. Underestimation of the undulations of the dynamics of these indices can lead to imbalances in many economic and social ratios. The undulatory change in the sex and age structures of the population must be calculated as well in planning the scope of training for specialists.

The dynamics of the educational level of the working-age population is basically dependent on the interaction of two demographic waves: the size of the contingent leaving the working-age force (and their educational level) and the size of the contingent of young people entering the working-age level (including the calculation of the proportion of those continuing further education in higher or secondary specialized education institutions). In spite of this, such items as the large size of the group of persons with a low educational level who take their pensions, as well as the significant increase in the number of years of study for young people born during the years of a slump in the birth rate, can influence the population's educational level to an identical degree.

Let us examine how the dynamics of the size and the educational level of the age groups of pre-pensioners, women 50-54 years of age and men 55-59 years of age, will affect the average educational level of the working-age population on a long-range basis.

In the 11th 5-year Plan a younger age group of men, participants in the Great Patriotic War, and women, teenagers during the war years, are taking their pensions. The proportion of this group is numerically somewhat higher than the proportion of those who took their pensions in the 10th 5-year Plan.

In the 12th 5-year Plan the contingent of those taking their pensions is growing significantly, in as much as, for the first time, a generation of men too young for induction during the war is reaching pension age. The war affected not only the size of the given age groups. One of the negative social consequences of the war is the fact that the educational level of the people taking their pensions in the 11th and 12th 5-year plans (those who should have received primary or secondary education during the war years) is lower than that of those who became pensioners in the 10th 5-year Plan (based on the proportion of specialists with higher or secondary specialized educations).

The taking of pensions in the 11th and 12th 5-year plans by age groups with a relatively lower educational level and a considerably higher numerical proportion (in comparison to the 10th 5-year Plan) will result in a raising of the average educational level of the general contingent of the nation's working-age population.

In the eighties the educational level of young people will grow and this will lead to an increase in the educational level of the working-age population. The proportion of young people who will continue their studies in higher and secondary specialized education institutions depends on two primary factors: the size of the group enrolling in VUZ's and secondary specialized education institutions and also the contingent of young people who graduate from the secondary school and the PTU. For all the years of the 11th 5-year Plan the enrolment index for the number of students in VUZ's has been set at the 1981 level. The size of the group enrolling in secondary specialized education institutions will grow insignificantly (about three percent). The number of young people reaching working age (in our calculations we are using an averaged series of the numbers of 16 to 18-year olds) will decrease right up to 1988. The minimum number of persons graduating from the secondary school and the PTU will be observed in the 1987/1988 school year. As a result the educational level of young people in the eighties will grow considerably, even with the stabilization of the enrolment conditions for VUZ's and secondary specialized education institutions, until 1987/1988. According to our calculations the proportion of persons with a higher education who will hold positions in the economy will increase from 10.7 percent in 1980 to 12.5 percent in 1985. In all the number of specialists with a higher education in the 11th 5-year Plan will increase by 2.4 million people; in the 10th 5-year Plan the analogous growth amounted to 2.6 million people (from 9.5 million people to 12.1 million).

The dynamics of the demographic features affect not only the growth of the

educational level of the working-age population, but also the structure of the economy's sectors by specialists. If the structure of the economy for specialists in a regional and sectorial cross-section changes, then the structure of the contingent of students in VUZ's and secondary specialized education institutions according to specialties also changes.

The dynamics of the number of annual births greatly affect the change in the need for specialists in the sectors of the non-industrial sphere which serve the population. Let us analyze how the fluctuations in the dynamics of the primary demographic wave--the number of annual births, as well as the behavior of derivative values--the size of the pre-school and school-age contingents and the like--lead to what kind of changes in the need for specialists and in the student contingents.

During the Great Patriotic War the number of children born annually decreased to one-half to one-third of the comparable pre-war level (in 1940 6.095 million people were born). After the war the birth rate increased from year to year and in 1960 reached 5.341 million people. The peak in the number of births (1956-1960) and the observed subsequent decline, to a large degree, is explained by calculation of the differing size of the contingent of persons of child-bearing age (born before and during the war). The difference in the number of births in these periods exceeds 5 million people (26 million in 1956-1960 in contrast to 20.3 million people in 1966-1970). The minimum number of new births was observed in 1969 (4.087 million people) and the size of the group of people born in a single year began to grow gradually. The next local maximum in the number of annual births is expected in the middle of the eighties.

During the one and the same period one can observe a maximum size in one age group and a minimum size in another. Thus, in the 10th 5-year Plan the number of the 20 to 24 year-old age group that graduated from VUZ's and secondary specialized education institutions was the highest for the post-war period. At the same time, the number for the younger secondary school classes was the lowest (almost 30 percent less than the number of 20 to 24-year olds).

After 10 years, during the 12th 5-year Plan, this scanty contingent will graduate from the secondary specialized education institutions. In this same period the size of the pre-school age group will be the highest, exceeding the numerical size of the 1956-1960 group--the peak birth years. The number of new births in 1983--5.456 million people--has already exceeded the number of births for 1960.¹²

In the 1983-1987 period a maximum in the number of the youngest age group (0-4 years) is expected. The number of children in this age group, at almost 5 million people, will exceed the number of young people reaching working age (15-19 years). For this reason, at the same time that there will be an increase in the need for birthing beds, pediatricians and pre-school institutions during this period, the senior classes of secondary schools and PTU's will experience a shortage of students.

In the second half of the eighties a routine decline in the number of annual

births is expected. Fluctuations in the dynamic series of the numbers of the younger age groups will be highly substantial on the foreseeable long-range basis (on the order of 20 percent). For this reason, in planning the scope of the need for specialists and the type of their training in such professions as teachers and educators in children's pre-school institutions, as leaders of circles and sections and as trainers and medical workers, it is necessary to provide for expansion of the type of their training and the capacity for planned cross-training for work with other age group contingents. Such a switch-over also involves planning for the use of the material assets of public education, culture, health care, physical culture and sports, and social security.

At the present time the planning for many indices of the development of sectors of the non-industrial sphere, in particular the ensuring of the needs of the sectors for specialists, is proceeding based on the numerical population standards, calculated per 1,000 people, the number of children aged 0-15 or, in the case of determining the need for children's pre-school institutions, on the number of women of fertile age. The range of fluctuations for such aggregated age groups smooths out (averages out) significantly. Thus, from 1975 to 1980 the number of women in the 16-49 year age group did not change for all practical purposes and the number of children aged 0-15 even decreased somewhat. But, at the same time, the number of annual births increased from 4.61 million to 4.85 million people (by 6.5 percent), while the number of children in the youngest age group (0-4 years) increased by 9.2 percent. Therefore, the planning for the need for specialists requires a more careful forecast of the future birthrate and the dynamics of the number of the youngest age groups, at the basis of which should lie not only the calculation of the number of women of fertile age, but also the change in the structure of this contingent.

With the introduction of universal secondary education practically every graduate of a secondary school or PTU can be considered a potential student for higher education and, correspondingly, the correlation between the number of persons who have reached 18 years of age and the number of enrolment positions in higher and secondary specialized education institutions can be considered as the size of the potential competition for students of a young age.

Let us examine how the undulatory dynamics of the number of the contingent of 18-year olds affect the intensity of the potential competition for the enrolment of young people in VUZ's and technicums. The dynamic series of the number of 18-year olds reached an absolute minimum in the years 1960-1962 and a maximum in the years 1978-1979, the size of which exceeded the number of 18-year olds in the middle sixties by a factor of 1.5. The subsequent minimum of the series of the number of 18-year olds is expected in 1987 and its significance will be a level 30 percent lower than that of 1978. An analogous maximum influx of potential students, in comparison to the 10th 5-year Plan, can be expected only in the distant future (in the years 2001-2005).

Until recently the enrolment of students in higher and secondary specialized education institutions, for all practical purposes, had not been connected with the fluctuations in the series of the number of potential students. Thus, in the first half of the sixties, when their number remained at a low level, the enrolment of students in VUZ's grew by 44 percent (from 593,000 people in

1960 to 845,000 people in 1965 and enrolment in the day sections during these years increased by a factor of almost 1.5). Enrolment in secondary specialized education institutions increased by 43 percent.

In the subsequent years (from 1965 through 1978) the number of the group of 18-year olds grew by 48 percent, while the growth of enrolment in VUZ's and technicums amounted to 20 percent and 30 percent respectively. As a result the correlation between the general number of enrolment places in VUZ's and the number of 18-year olds changed from 4.1:1 in 1965 to 5.5:1 in 1978.

After 1978 the number of young people aged 17-19 began to decline and the size of the potential competition again fell to 4.8:1 (an analogous correlation was observed in 1969).

Among the students there are quite a few people with work records. The tension of real competition, naturally, depends on both their number and the correlation between the modes for obtaining special education (with or without leave from work). The largest portion of the young people enroll in the day sections of VUZ's and secondary specialized education institutions immediately after graduating from secondary school or having only a brief work record (up to 3 years). For this reason, in our opinion, it is advisable to compare the dynamics of the enrolment quota for day sections of VUZ's and technicums with the number of series of 17-19 year olds.

Dynamics of the enrolment quota and the potential competition for the day sections of VUZ's and secondary specialized education institutions for the years 1965-1983, expressed in percentages*

Index	1965	1970	1975	1980	1982	1983
Enrolment quota for day sections:						
VUZ's	42	50	60	61	60	60
technicums	53	63	64	65	65	64
Potential competition in day sections:						
VUZ's	9.2	8.7	8.2	7.9	7.3	7.1
technicums	6.0	5.2	5.5	5.3	5.2	5.1

*Based on: "Narodnoye khozyaystvo SSSR v 1982 g." [The National Economy of the USSR in 1982], Moscow, 1983, p 468; "Narodnoye khozyaystvo SSSR v 1983 g.", Moscow, 1984, p 500.

Analysis of the dynamics of the size of the potential competition for the years 1960-1983 reveals, along with a general tendency towards a decrease in the potential competition and a consequential rise in the educational level of the young people, fluctuations of values in individual sub-periods. In particular there is an increase in the potential competition for day sections

of VUZ's in 1969 to 9.3 and in 1978 to 8.3 (as against 8.2 in 1975) and for secondary specialized education institutions in 1975 up to 5.5 (as against 5.2 in 1970). During these sub-periods the "competition" grew, despite an increase in the enrolment quota, because the growth in the number of young people at this time outstripped the dynamics of the enrolment increase.

For the eighties the USSR Ministry of Higher and Secondary Specialized Education has planned for an increase (by three percent) in the evening classes for higher education to 57.7 percent from the general enrolment by 1985.¹⁶ This, according to our calculation, will not impede a further reduction of the potential competition in VUZ's from 7.7:1 in 1981 to 6.9:1 in 1985. An analogous reduction of the competition (by 10 percent) occurred only over the preceding 11 years. Therefore, despite the stabilization of the general competition for VUZ's in the 11th 5-year Plan, the educational level of young people (the proportion of those among them studying in VUZ's and technicums) is growing currently at a much faster pace than in the previous 5-year plan.

The growth, as well as the sharp decline of the potential competition, is the inauspicious consequence of the dynamics of a demographic wave--that of the number of annual births. This influence can be eliminated by changing the size of enrolment in VUZ's and technicums in accordance with the dynamics of the wave. But, in as much as the enrolment in specialized education institutions depends primarily on the economy's need for specialists, which acts as a basic parameter, regulating changes in the potential competition, one can, in our opinion, recommend a change in the correlation between classes taken with and without leave from work.

During the peak period of the demographic wave for the number of graduates from secondary schools the proportion of day classes should be maximized. During the decline in the number of 17-19 year olds it is necessary to reduce the quota for day classes so that the large contingent of young people who find themselves in the worst competition conditions could, in the future, obtain specialized education without leave from work. During the period when the largest contingent reaches working age the quota for classes with leave from work should be minimal. Then, when the growth in the number of secondary school graduates occurs, it will again be necessary to increase day classes. In conformity with the situation of the eighties, in our opinion, the quota for day classes will again need to be increased, beginning in 1989, when the number of young people graduating from secondary schools will grow again.

Thus, in accordance with the development requirements for scientific and technical progress, it is necessary to plan for an increase in the proportion of specialists in relation to all positions, as well as in the general number of the young, working-age contingent. Because of this, the dynamics of demographic waves must be considered both during the determination of the general number of students in VUZ's and secondary specialized education institutions (especially during planning of the scope and type of training for specialists for the social and cultural sectors), as well as during the determination of the contingent of students according to individual classes. During the years that the enrolment for day classes is reduced one can recommend an expansion of the network for necessary cross-training and for increasing the skills of

those specialists already trained in VUZ's and secondary specialized education institutions.

FOOTNOTES

1. Based on: "Narodnoye khozyaystvo SSSR v 1983 g." [The National Economy of the USSR in 1983], Moscow, 1984, pp 385, 398.
2. "Materialy Plenuma Tsentral'nogo Komiteta KPSS, 14-15 iyunya 1983 g." [Materials on the CPSU Central Committee Plenum, 14-15 June 1983], Moscow, 1983, p 13.
3. See: "Razvitiye vysshego obrazovaniya v usloviyakh NTR v sotsialisticheskikh stranakh" [The Development of Higher Education under the Conditions of the Scientific and Technical Revolution in Socialist Countries], Moscow, 1981, pp 80-81.
4. See: D. I. Chuprunov and Ye. N. Zhil'tsov, "Ekonomika, organizatsiya i planirovaniye vysshego obrazovaniya" [The Economics, Organization and Planning of Higher Education], Moscow, 1979.
5. See: "Metodologicheskiya voprosy issledovaniya protsessa formirovaniya potrebnosti naseleniya v vysshem obrazovanii" [Methodological Questions on Research into the Process of Formulation of the Need of the Population for Higher Education].--In the books: "Obrazovaniye i sotsial'naya struktura" [Education and the Social Structure], Moscow, 1976; "Obrazovaniye v zhiznennykh planakh molodezhi" [Education in the Vital Plans of Young People], Moscow, 1975.
6. "Vestn. vysshey shkoly" [Journal of the Higher School], 1982, No 4, p 15.
7. In comparison with the previous peak in the number of young people (1978) the number of 18-year olds in 1988 will decrease by 30 percent (calculated on data on the number of annual births and the coefficients of mortality by age for 1971, Moscow, "Narodnoye khozyaystvo za 1960-1971 gg." [The National Economy for the years 1960-1971]).
8. Based on: "Narodnoye khozyaystvo v 1982 g.", Moscow, 1983, pp 364, 372.
9. Ibid.
10. Based on: "Narodnoye khozyaystvo v SSSR v 1961 g.", Moscow, 1962, p 69; "Narodnoye khozyaystvo v 1983 g.", Moscow, 1984, p 31.
11. "Narodnoye khozyaystvo SSSR v 1969 g.", Moscow, 1970, p 32.
12. Ibid.

13. Based on: "Narodnoye khozyaystvo SSSR v 1980 g.", Moscow, 1981, p 31.
14. Based on: "Narodnoye khozyaystvo v 1960-1970 gg."
15. Based on: "Narodnoye khozyaystvo SSSR v 1982 g.", Moscow, 1983, p 468.
16. "Vestn. ..." op. cit.

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